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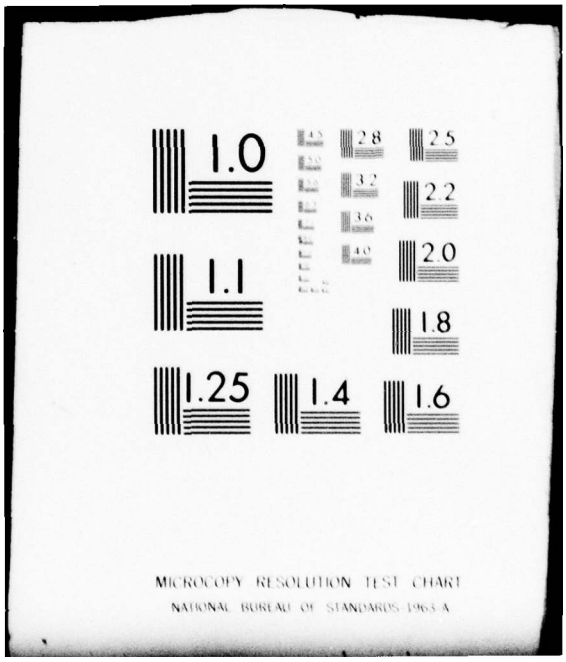
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FIRST-TERM SURVIVAL AND REENLISTMENT CHANCES FOR NAVY RATINGS AND A STRATEGY FOR THEIR USE

By James S. Thomason

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First-term retention rates of CY 1973 regular Navy recruits are estimated by rating. The effects of given pre-service and early in-service factors on retention often differ substantially across the ratings. Very little unavoidable conflict exists between the characteristics most favorable to first-term survival and those most favorable to reenlistment. Consequently, the results can be exploited in a rating assignment procedure to improve enlisted retention.

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2. This Research Contribution, prepared in connection with CNA's study of Manpower Personnel Policies in the All Volunteer Force, estimates CY 1973 male recruits' first-term survival (and reenlistment) chances in 37 Navy ratings. It then shows that the effects of specific recruit characteristics vary across ratings. An assignment procedure to exploit such variation could lead to an overall higher survival rate. Especially promising recruit characteristics for such a procedure include age, educational level, participation in the delayed entry program, and boot camp location. A similar pattern of variations is also shown with respect to reenlistment chances across ratings.

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INTRODUCTION AND SUMMARY

A Navy recruit generally has better chances of completing his first term of service in one rating than in another. Moreover, within the same rating, prior research shows that recruits' survival chances differ according to their specific pre-service characteristics (reference 1).

The work reported here assesses whether relations between survival chances and given recruit characteristics differ across ratings. The major finding is appreciable variation across 37 Navy A-school ratings,[1] most notably with respect to age, educational level, participation in the delayed entry program, and boot camp location.

For example, whether a recruit was 17 rather than 18 years old at entry was irrelevant to his survival chances in more than two thirds of the ratings/groups. Education differences had no independent effects on survival rates in six of the 14 ratings/groups. Where lower educational levels did affect survival, the impact was virtually always strongly negative.

In nine ratings/groups, those whose entry to the service was delayed (DEP) had higher survival rates than non-DEPs, other characteristics held constant. The recruit's boot camp location (and experience) also affected his survival chances in nine ratings/groups. Boot camp in Orlando was always at least as favorable to survival as training elsewhere.

A recruit's race had independent effects on his survival chances in only two ratings/groups. Whether the new recruit had dependents affected his survival chances only in two ratings/groups. Lower mental group recruits (3L and 4) survived at lower rates in just one of the 37 ratings, other things equal. In two ratings/groups, lower mental group recruits actually had higher survival rates than did other men.

Where activity or tour-type assignments affected survival, duty on an amphibious ship, an auxiliary patrol vessel, a surface combatant, or with a sea-based air squadron always had an adverse effect relative to the modal assignment, whereas assignment to a

---

[1]The data set consists of semi-annual Enlisted Master Records for recruits who joined the regular Navy in CY 1973 and were assigned to Class A school. We aggregated ratings into 14 ratings/groups. Of these 14, four consist of single ratings (BTs, MMs, HTs, and ENs). The other 10 are groups of two or more similar ratings (see table 1). Groups were formed from ratings too small for separate treatment.

TABLE 1

OVERALL PROBABILITIES OF FOUR-YEAR SURVIVAL IN 14 MAJOR RATINGS/GROUPS

(1973 cohort)

Abbrev.	Major rating/group	Ratings	Probability of survival	Total recruits	Four-year survivors
BT	Boiler technicians	BT	.53	1,729	908
MM	Machinists mates	MM	.64	2,725	1,753
EM/IC	Electricians	EM,IC	.71	2,142	1,526
EN	Enginemen	EN	.64	1,030	657
HT	Hull technicians	HT	.60	1,381	825
ET/FT	Weapons control	ET,FT	.77	2,128	1,628
SENSOR	Sensor systems	ST,EW,OT	.77	1,045	803
RM/CT	Radiomen/communications	RM,CT	.69	1,646	1,143
AvWep	Aviation weapons	AT,AW,AQ,AC,AX	.79	2,109	1,655
AvM	Aviation maintenance	AM,AD,AE,AO	.69	3,512	2,407
ABASPR	Aviation support	AS,PR,AB	.61	1,096	663
DT/HM	Health care	DT,HM	.71	3,445	2,429
LOG	Logistics	MS,SK,AK,DK,SH	.59	2,580	1,527
ADMIN	Administration	PN,YN,AZ,PC,AG	.68	1,570	1,059

submarine or toured-sea duty always had a favorable impact. Only duty on a carrier had either a favorable or an adverse effect depending on the rating/group.

These new results have especially important implications for Navy assignment policies. A formal procedure, using network analysis or linear programming, could exploit such differences to increase first-term survival. Two general rules would govern all job assignments: 1) assign a recruit to the job that maximizes his expected survival chances; 2) if only one of two recruits can be placed in a given job using rule 1, assign the one whose expected survival chances are hurt most in another job.

Refinements could then incorporate various real-world complications, for example:

- recruits will not be equally qualified for every job;
- maximizing overall first-term survival may conflict with other goals, such as maximizing reenlistment or survival in specific jobs;
- recruit loss shortly after training may cost more than loss later in the first term;
- assignments must be made at least monthly, not just annually.

This report also presents estimated reenlistment rates for CY 1973 recruits who survived their first (four-year) term and then explores two major applications: as an aid in the search for reenlistees and as a component of a first-term job assignment procedure. Results indicate remarkably little conflict between assignment strategies for optimizing survival versus those for optimizing reenlistment. Of all logically possible conflicts between the best recruit characteristics for survival and those most favorable for reenlistment, only about five percent display such conflict.

Without applying a formal optimizing procedure we cannot know whether the Navy has <u>already</u> (albeit informally) fully used this opportunity to increase overall survival and reenlistment rates. Inspection of 1973 cohort rating/group means on selected recruit characteristics does suggest room for improvement.

SURVIVAL RATES AND OCCUPATIONAL ASSIGNMENTS

Prior CNA work (reference 1) examined CY 1973 recruits in two large ratings, boiler technicians and machinists mates, and specifically estimated their four-year survival chances as a function of pre-service and early in-service characteristics (see appendix A). The statistical technique used in that prototype analysis was a simple probit model estimated by maximum likelihood procedures (see appendix B). The work reported here extends that assessment to 35 additional ratings clustered into 12 more ratings or rating groups. All together, these 14 ratings/groups comprise most of the ratings requiring Class A school training.

Not all survival rate patterns (across ratings/groups) can be exploited to increase overall survival. For perspective on this, figure 1 presents a simplified set of possible relations between job (rating) assignments and survival chances. Assuming that the Navy enlists only two types of men and has only two types of jobs to fill, figure 1 indicates two scenarios of interest.[1]

Two Structures

Figure 1's two scenarios differ in one crucial respect: type I affords the Navy no opportunity to increase overall survival rates by reassignment, whereas type II does.

Structurally the two scenarios differ according to whether the (signed) differences between cells in each row are equal (type I) or not (type II). This distinction is vital and is specified formally in the figure.

In type I scenarios there is no difference between row differences. Thus, even if one type of recruit is moved from one job to another to improve his survival chances, when one of the other type of recruit is (necessarily) transferred in the reverse direction there can be no net gain in overall survival, no matter how the two recruit types were distributed between jobs before the reassignment effort began.

---

[1]The context of figure 1's scenarios is further simplified here by the following additional assumptions:

- the Navy is concerned only with maximizing overall retention rates,
- any recruit can do any job equally well,
- the attrition costs of all recruits are the same,
- the attrition costs of recruits from any one job are the same as from any other job,
- a fixed number of recruits is needed in a given job,
- a fixed number of each recruit-type is available.

I

	(a)		(b)		(c)		Condition
	J_1	J_2	J_1	J_2	J_1	J_2	
R_1	75%	75%	75%	60%	50%	75%	$R_1J_1-R_1J_2 = R_2J_1-R_2J_2$
R_2	75%	75%	45%	30%	50%	75%	

II

	(a)		(b)		(c)		
	J_1	J_2	J_1	J_2	J_1	J_2	
R_1	75%	50%	75%	75%	60%	50%	$R_1J_1-R_1J_2 \neq R_2J_1-R_2J_2$
R_2	50%	75%	50%	75%	65%	50%	

Only type II scenarios are exploitable:

Type IIa: Maximize R_1's in J_1, maximize R_2's in J_2 .

Type IIb: Maximize R_2's in J_2 .

Type IIc: Maximize R_2's in J_1 .

NOTE: A fixed number of recruits is needed in each job type, and a fixed number of each recruit type is available. R_1 and R_2 represent two different recruit types; J_1 and J_2 represent two different job types.

FIG. 1: TWO TYPES OF RETENTION SCENARIOS (RECRUIT/JOB TYPES)

By contrast, in any type II situation there always will be (in principle) transfers from which the gain in survival rate will be greater than the loss (if any) due to the "reverse" transfer of the other recruit type. Consider situation IIc in figure 1. The R_1 row difference is (+.10) while the R_2 row difference is (+.15). A net gain (+.05) can therefore be achieved by moving even one R_2 to J_1 (unless all R_2's were already in J_1), despite the "loss" thereby incurred because an R_1 must be moved from J_1 to J_2. In brief, a net gain will always be possible where a type II scenario exists.

Three Issues

Given the logic sketched above, three major questions arise in considering the applicability of a formal occupational assignment procedure:

1. Do exploitable circumstances (scenario II) occur frequently?

2. Does the Navy already fully exploit such circumstances where they do exist?

3. Do complications to the scenarios such as unequal competence of different recruit types, higher costs attached to the loss (from service) of one type of recruit versus another, or unequal availability of particular recruit types make development of such a procedure either unworkable or trivial?

The work in this report addresses only the first question. Unless exploitable circumstances occur fairly often, there will be little merit in developing the formal assignment procedures needed to determine whether the Navy fully took advantage of scenario II conditions in assigning the 1973 cohort.

The third question cannot be answered without running at least an initial version of a formal procedure. The complications mentioned above are not intractable in principle. But if even preliminary results indicate that survival gains would have been small, the mere existence of such complications will mean that 1973 cohort members were assigned to jobs about as well as they could have been. In short, the first issue is the crucial one to resolve at this stage.

FOUR-YEAR SURVIVAL RATES

The Sample and Estimation Method

To decide how often exploitable job assignment conditions occurred, we first needed to estimate the four-year survival rates in each of the 14 Navy ratings/groups (see table 1) from pre-service and early in-service recruit characteristics (figure 2).[1] The 1973 cohort was used for two reasons. Men enlisted during that year were the first to enter the all-volunteer force; furthermore, this cohort was the only AVF group to have completed four years of service as of December 1977.

Only men who survived at least the first six months of service are included in this sample, to permit occupational identification.

To estimate the effects of pre-service and service characteristics on survival rates, simple probit analyses were run on the four-year service records of sample recruits in each of the 14 ratings/groups shown in table 1.

Overall Average Survival Rates

Table 1 shows the average four-year survival rate of sample enlistees, the initial sample size, and the number of four-year survivors in each major rating/group. Although interesting differences appear across these ratings/groups,this information does not tell us how different types of recruits typically survive in each.[2] Table 2 is designed to do that.

---

[1]The estimation models also included recruit differences (within a given major rating/group) with respect to activity assignment, specific rating, and tour-type assignment (see figures 2 and 3).

[2]See appendix C for the proportions of each rating/group with given pre-service or in-service traits.

Pre-service characteristics:

RACE	1 if nonwhite
PDEPS	1 if any primary dependents at enlistment
AGE17	1 if age at enlistment = 17
AGE18	1 if age at enlistment = 18
AGE19	1 if age at enlistment = 19
AGE20P	1 if age at enlistment $\geq$ 20
EDLT11	1 if years of education < 11 at enlistment
ED11	1 if years of education = 11
ED12	1 if years of education = 12
EDGT12	1 if years of education > 12
MG1	1 if AFQT score 95-100
MG2	1 if AFQT score 67-94
MG3U	1 if AFQT score 50-66
MG3L	1 if AFQT score 36-49
MG4	1 if AFQT score 21-35

Early in-service characteristics:

GREAT LAKES(RTC1)	1 if bootcamp at Great Lakes Naval
SAN DIEGO(RTC2)	1 if bootcamp at San Diego
ORLANDO(RTC3)	1 if bootcamp at Orlando
DELAYED ENTRY(DEP)	1 if in Delayed Entry Program

Service assignment characteristics:[a]

SEA	1 if sea/shore rotation duty is sea
SHORE	1 if sea/shore rotation duty is shore
TOURED SEA(TSEA)	1 if sea/shore rotation duty is toured sea
SURFACE(SURF)	1 if duty on surface combatant
SUBMARINE(SUB)	1 if duty on submarine
CARRIER(CV)	1 if duty on aircraft carrier
SEA BASED AIR(SBA)	1 if duty on sea based air
LAND BASED AIR(LBA)	1 if duty on land based air
REPAIR(REP)	1 if duty on repair vessel
AUXILIARY/PATROL(AUX)	1 if duty on amphibious ship
OTHER	1 if duty on other activity assignments
RATING	(See figure 3 for details)

[a]See appendix A for more precise definitions.

FIG. 2: VARIABLE DEFINITIONS

TABLE 2

ESTIMATED EFFECTS OF PRE-SERVICE AND
EARLY IN-SERVICE CHARACTERISTICS
ON 1973 COHORT FOUR-YEAR SURVIVAL CHANCES

(By major ratings/groups)

Rating/ group	Intercept chance[a]	Age17[b]	Age19	Age20P	Non-Caucasian	Dependents	RTC1
BT	.56		.09	.10		-.15	
MM	.57	-.06					
EM/IC	.67						
EN	.56						-.07
HT	.72						
ET/FT	.78						
SENSOR	.83						-.08
RM/CT	.70						
AvWep	.76						-.12
AvM	.73	-.06			-.07		-.04
ABASPR	.60					-.15	
DT/HM	.78	-.04			.04		-.16
LOG	.58	-.05	.08	.07			-.05
ADMIN	.66						
Total significant effects		4	2	2	2	2	6

TABLE 2 (CONT'D)

Rating/ group	RTC2	MG3U	MG3L4	DEP	EDLT12[c]	EDGT12
BT		-.05		.05	LT11(-.14) EQ11(-.12)	
MM				.08		
EM/IC	-.05					
EN				.12	.09	
HT	-.06				LT11(-.08) EQ11(-.20)	
ET/FT	-.09			.04	LT11(-.46)[d]	
SENSOR	-.06			.08		
RM/CT						
AvWep	-.09			.08		
AvM	-.04	.03	.05	.05	-.06	.08
ABASPR				.11	EQ11(-.10)	
DT/HM	-.10				-.08	
LOG				.08	LT11(-.11) EQ11(-.07)	
ADMIN	___	___	.07	___	_____	___
Total significant effects	7	2	2	9	8	1

FOOTNOTES TO TABLE 2

[a]These intercept estimates are for a 1973 cohort recruit with the following characteristics: Age (18); Race (Caucasian); Mental Group (1 or 2); Dependents (none); RTC (Orlando); Education (12 years); DEP Status (no delayed entry); Activity, Rating and Tour-type (modal--see figure 3 for details).

[b]This and all other columns (except the intercept chance) show any significant ($t > 1.64$) effects on four-year survival of substituting one given non-intercept characteristic for its counterpart in the intercept.

[c]For ratings/groups where discrete sub-categories of "less than 12" have distinct effects, e.g., LT11(-.14) and EQ11(-.12) for BTs, these effects are separately specified.

[d]Although this probability impact is very sizeable, note that only .5 percent of the ET/FTs fell into this category.

Rating/group	Activity	Rating	Tour-type
Boiler technicians	SURF	BT[a]	SEA
Machinists mates	SURF	MM[a]	SEA
Electricians	OTHER[b]	EM	SEA
Enginemen	OTHER	EN[a]	SHORE
Hull technicians	OTHER	HT[a]	SHORE
Weapons control	OTHER	ET	SEA
Sensor systems	OTHER	ST	SHORE
Radiomen/communications	OTHER	RM	SHORE
Aviation weapons	SEA BASED AIR	AT	SHORE
Aviation maintenance	OTHER	AM	SHORE
Aviation support	OTHER	AB	SHORE
Health care	OTHER	HM	SEA & TOURED SEA
Logistics	OTHER	MS	SEA
Administration	OTHER	PN	SHORE

---

[a]No variation across recruits' ratings in these ratings/groups.

[b]"Other" means a residual-type (non-ship/squadron duty) activity assignment.

FIG. 3: INTERCEPT ACTIVITY, RATING, AND TOUR-TYPE PROFILES IN 14 MAJOR RATINGS/GROUPS

Effects of Pre-Service and Early In-Service Characteristics

Table 2 presents estimates of survival probabilities for various recruit types within each of the 14 ratings/groups.[1] Important differences exist across groups in the estimated survival rates for the intercept (modal) recruit-type, i.e., one with all of the following pre-service and early in-service traits: Age (18); Race (Caucasian); Mental Group (1 or 2); Dependents (none); Education (12 years); DEP status (no delayed entry), RTC (Orlando).[2] This type had an average survival rate which varied from a low of 56 percent (as a boiler technician or engineman) to a high of 83 percent (in the sensor systems group). Looked at in isolation, these results suggest that if the Navy wants to maximize survival rates among this type of recruit, it should give all of them sensor systems ratings. Clearly, however, that assignment strategy would create several problems.

However, table 2 also provides a means of approximating average survival rates for all other recruit-types, so we are not restricted to the intercept recruit in devising a job assignment

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[1]See appendix D for the detailed probit results for each major rating/group. Table 2 itself only presents probability changes for "non-intercept" characteristics which differ significantly ($t > 1.64$) from intercept characteristics in their effects on survival rates.

[2]Intercept estimates also apply only to recruits with four-year first-term obligations (at entry). Six ratings/groups had significant proportions of recruits with (entry) obligations other than four years: MMs, EM/ICs, ET/FTs, SENSORS, RM/CTs and Aviation Weapons. These six had appreciable numbers of six-year "obligors" at entry (6YOs). Virtually all 6YOs begin their service in specialized programs only available to highly qualified individuals. To compare four-year survival chances of the same recruit across ratings/groups, only recruits with four-year obligations (at entry) are discussed here. See appendix D for precise estimates of the (always favorable) impact on survival chances, other things equal, of being a 6YO at entry in these six ratings/groups.

strategy.[1] For example, to identify the survival rates (across major ratings/groups) of a recruit who is the intercept type except that he is 17 rather than 18 years old, we simply add the probability change(s) listed in the "17 year old" column of table 2 to the probability for the intercept type in that rating/group. Specifically, therefore, this "intercept except 17" type enlistee has his best survival chance in the sensor systems ratings (83 percent) and his worst chance as a machinists mate (57-6 = 51 percent). Suppose we also want to know the survival rates in various ratings/groups of a 17 year old non-Caucasian who went to boot camp at Great Lakes (RTC1) but [illegible]ise the intercept type. We would add the sum of the probability changes associated with each of those non-intercept traits to the intercept probability. For this type of recruit assigned to the health care group, for example, we would add -15(-4 + 5 - 16) to the intercept value of 78, for an average rate of 63 percent.

The results in table 2 can be summarized generally as follows. For some ratings/groups a particular pre-service or early in-service characteristic has significant (adverse or favorable) effects on survival rates, while in other ratings/groups it has none. For instance, whether a recruit was 17 years old at entry rather than 18 (the intercept value) is irrelevant to his survival chances in more than two thirds of the ratings/groups (10/14). In the other four, however, being 17 does make a difference.

Second, when a characteristic (such as being 17) does make a difference in terms of survival, the direction of the effect is overwhelmingly consistent. For example, for the ratings/groups in which it does make a difference, being 17 at entry has an adverse effect compared to the intercept value of 18 years. The following characteristics, when significant, have an adverse effect on survival (relative to the intercept term): age 17, presence of dependents, boot camp training at RTC1 (Great Lakes) or RTC2 (San Diego), and educational level less than 12 years (except for enginemen). On the other hand, when the following variables have an impact on survival (relative to the intercept term), it is

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[1]The procedure gives proper results when calculating survival chances of a recruit with one non-intercept characteristic, and yields approximately accurate probabilities even if the recruit has more than one non-intercept characteristic. In the latter case, however, the precise technique for calculating a recruit's survival chances is to add the probit coefficients for those characteristics to the intercept probit coefficient (see appendix D), find the corresponding probability from a cumulative standardized normal distribution table, and then subtract that probability from 100 percent. This yields a consistent survival probability estimate for that recruit type (see appendix B for an example).

favorable: age 19 and age 20 (or greater) at entry, mental groups 3L or 4, delayed entry (DEP), and education greater than 12 years.[1]

Third, of the seven pre-service and early-in-service variables examined here, only boot camp location, delayed entry (DEP), and educational level have significant effects on survival rates in at least half the ratings/groups. On the other hand, inspection of table 2 will indicate that, among pre-service and early-in-service characteristics, the presence of dependents has the strongest average effect, (-.15) where it has any effect at all.

From the standpoint of improving overall first-term survival, however, the most important fact to emerge from table 2 is that the impact of a given characteristic on survival rates differs across ratings/groups. This means that, unless the Navy already fully exploits such patterns, an assignment procedure can be developed to improve overall survival rates.

Effects of Various Within-Rating/Group Assignments

Tables 1 and 2 refer to only 14 major ratings/groups. However, the survival rates estimated (in table 2) for different recruit types in each rating/group were based on a model that explicitly estimated (controlled for) any differences in survival rates attributable to recruit differences in Activity, Rating or Tour-type (ART). Each of the 14 ratings/groups in this sample has a modal ART profile, but that profile varies from one major rating/group to another (figure 3).[2] Despite this variation, the modal ART profile for each rating/group was assigned to the intercept along with the modal pre-service and early in-service profile (no variation) in estimating survival rates for recruit types in that rating/group.

Table 3 summarizes our findings about the effects on survival rates of activity, rating, and tour-type assignment. Specifi-

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[1]The race variable and the mental group 3U characteristic each have significant effects on survival, other things equal, only in two ratings/groups: 1) the impact on survival of being non-Caucasian is adverse for aviation maintenance ratings, while for health care the impact is favorable; 2) the effect on survival of being in mental group 3U is favorable for aviation maintenance, but for boiler technicians it is negative.

[2]See appendix C for the proportion of each major rating/group assigned to a given activity, rating or tour-type.

TABLE 3

FULL INTERCEPT FOUR-YEAR SURVIVAL PROBABILITIES AND SIGNIFICANT CHANGES IN PROBABILITY ASSOCIATED WITH NON-INTERCEPT ACTIVITIES, RATINGS, AND TOUR TYPES

(By major ratings/groups)[a]

Rating/ group	Intercept chance[b]	Activity	Rating	Tour-type
BT	.56	CV (+.06)		TSEA(+.06)
MM	.57	SUB (+.13) AMPH(-.09)		
EM/IC	.67	SUB (+.11)		
EN	.56	AMPH(-.12)		TSEA(+.13)
HT	.72	SURF(-.10)		
ET/FT	.78	AUX (-.12)		
SENSOR	.83		OT(-.14)	
RM/CT	.70			
AvWep	.76			TSEA(+.10)
AvM	.73	CV (-.11) SBA (-.05)	AE(+.05) AD(-.05)	
ABASPR	.60		AS(+.08)	
DT/HM	.78		DT(-.07)	
LOG	.58	SURF(-.10) AMPH(-.09)	DK(+.08) SH(+.14) SK(+.08)	TSEA(+.11)
ADMIN	.66		AZ(+.08) AG(+.10)	

[a]See appendix D for details.

[b]Taken from table 2 (above).

cally, the table indicates those ART types which, regardless of the recruit type we are discussing, affected survival chances (either favorably or adversely) in a way significantly different from any such ART types not listed (for the given rating/group) in table 3. Thus for BTs, assignment to a carrier (CV) was found to raise average survival chances by six (+6) "survival points" relative to the chances in any other activity. For MMs, assignment to a submarine (SUB) raised a recruit's average survival chances by 13 survival points relative to the chances of an MM assigned to any activity other than a SUB or an amphibious ship (AMPH). An MM assigned to an AMPH ship, however, had a survival chance nine survival points less (-9) than one assigned to a non-SUB activity. An MM assigned to an AMPH ship had an average survival chance 22 survival points lower (-22 = -9 -13) than did the same type of MM assigned to a submarine.

Table 3 also reflects the discovery that, for example, a BT assigned to a carrier on toured-sea duty had an average survival chance 12 survival points (6 + 6) greater than the same type of BT assigned neither to a carrier nor to toured sea duty, and an average survival rate six survival points (+6) greater than that of the same type of BT assigned either to a carrier or toured sea-duty (but not to both).[1]

The boiler technicians and the machinists mates are separate ratings. But rating groups include as many as five separate ratings (see table 1). For example, the sensor systems group covers three separate ratings (ET, OT, ST). Of these three, however, only the OT rating assignment significantly affected (-14) a recruit's survival chances when other (non-rating) characteristics were held constant. Another (equally legitimate) way to view this finding is to conclude that assignment to either of the two other ratings (ET, ST) enhanced a recruit's chances (+14) relative to an OT rating assignment, other things equal.

As was true for the pre-service and early-in-service characteristics, table 3 shows that a given activity or tour-type assignment has a significant effect on survival rates in some ratings/groups but not in others. Where these assignments do matter, the direction of the effect for a given assignment is also highly consistent across those ratings/groups. Where it affects survival, assignment to an amphibious ship, an auxiliary patrol vessel, a surface combatant, or to a sea-based air squadron always has an adverse effect relative to the modal assignment. Where it matters in terms of survival in a rating/group, assignment to a submarine or toured sea duty always has a favorable impact relative to the intercept assignment. Only assignment to a carrier has

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[1]See appendix B for the strictly proper calculation procedure.

either a favorable or an adverse effect on survival (where it has any significant effect at all) depending on the rating/group one is discussing.[1]

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[1]One additional factor likely to affect survival and reenlistment rates in different ratings, other things equal, is the prospect of a reenlistment bonus, which varies by rating. Presumably, the larger the prospective bonus, the stronger the incentive both to qualify for reenlistment and then to reenlist, which at a minimum requires completing one's first term. However, discerning (any) specific effects of bonuses from this analysis is unlikely. Since the bonus was set up in large part to improve survival/reenlistment chances in ratings where they were especially low, and since we have no pre/post bonus-program information on survival and reenlistment rates, to infer the precise effects of such monetary incentives would be hazardous here.

OPTIMIZING SURVIVAL RATES THROUGH JOB ASSIGNMENT

Tables 2 and 3 together provide considerable information and allow us to make at least a first estimate of the prevalence of exploitable situations among members of this cohort.

The profiles in table 2 reveal that such situations did exist. For example, the table indicates that the overall survival rate in the 1973 cohort could have been raised by:

1. assigning intercept recruits (instead of intercept-but-age 17 recruits) to each of the following ratings/groups: MMs, AVMs, DT/HMs, and LOGs, while at the same time;

2. assigning all intercept-but-17 year olds to any other ratings/groups.

A slight modification of this transfer rule could have improved overall survival even further. Instead of replacing intercept-but-17 logistics group ratings by the intercept type, the Navy could have replaced intercept-but-17 recruits by intercept-but-19 men. The intercept-but-19 recruits for that transfer could most easily have been drawn from (and intercept-but-17 men used to replace them in) any rating/group not exhibiting a negative probability change for the intercept-but-17 recruit.

More generally, overall survival improvements could have been achieved in principle had the Navy employed the following rules:

1. assign recruits to ratings/groups where the cost (in "survival points") associated with their particular traits is minimized.

2. If only one of two recruits can be placed in a given rating/group using rule 1, assign the one whose expected survival chances are most adversely affected in another rating/group.

Table 2 indicates that quite a few such transfer possibilities could have been exploited in assigning this 1973 cohort. Furthermore, although the rules for exchanges among more fully non-intercept recruit types can rapidly become complicated, a large variety of advantageous transfers do seem to exist. Some of these complexities appear in the following example. Assigning intercept-but-17 type recruits who would have been MMs to be HTs instead (coupled with replacement of those 17 year old "MMs" by intercept type recruits who would have been HTs), could in principle have increased the overall 1973 cohort survival rate. But this increase would almost certainly not have resulted if the 17 year old "MMs" transferred to be HTs had attended boot camp in San Diego (RTC2).

The reasons for this constraint can be seen in table 2 itself: recruits from RTC2 had lower survival rates as HTs than as MMs, other things equal.

This kind of complexity to the interpretation of table 2 clearly suggests the value of a formalized assignment procedure, one which could generate and then quickly use more complex transfer rules to determine which set of "exchanges" would have been not only profitable but optimal vis-a-vis the overall survival rate.

REENLISTMENT RATES OF FOUR-YEAR SURVIVORS

Recruits who survive their first-term may or may not be declared eligible to reenlist. Even if eligible, however, they may not want to do so. In this section, the chances of reenlistment by recruits who entered the Navy in CY 1973 and survived their first, four-year term are estimated from the same set of pre-service and in-service characteristics used earlier to gauge their four-year survival chances. As in the prediction of survival probabilities, reenlistment chances are assessed for different four-year survivor types (defined by pre-service and in-service characteristics) within each of the 14 major occupational ratings/groups listed in table 4. Table 4 also provides information on the overall, average reenlistment rates of survivors from each of these 14 ratings/groups.[1]

Although instructive, the average reenlistment rates in table 4 do not take account of pre-service and in-service differences among survivors from each rating/group. Tables 5 and 6, by contrast, give us estimates of the reenlistment rates of different types of four-year survivors within each of the 14 ratings/groups.

Using an intercept profile for each rating/group identical to that employed above in estimating survival chances, table 5 first presents the average reenlistment rate for an intercept type survivor from each rating/group. Then it lists any significant ($t > 1.64$) change in probability of reenlistment attributable to the pre-service or early in-service characteristics included in the estimating model. Table 6 provides a comparable picture of any probability shifts associated with differences between survivors in their first-term activity assignments, ratings, and tour-types.

As with the survival estimates, tables 5 and 6 show that the effects of most given pre-service or in-service characteristics on reenlistment chances of survivors vary considerably from one rating/group to another. This is important for any strategy aimed at increasing reenlistment by occupational assignment. It means that there are occupational "reassignments" which could (in principle) increase the overall reenlistment rate of the cohort.[2]

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[1]All six-year obligors who survived four years were excluded from this analysis since they had not reached the reenlistment point.

[2]Whether the Navy can realistically permit the reassignments which would increase reenlistments is a separate and important issue.

TABLE 4

OVERALL PROBABILITIES OF REENLISTMENT BY FOUR-YEAR SURVIVORS[a] FROM 14 MAJOR RATINGS/GROUPS

(1973 cohort)

Abbrev.	Major rating/group	Ratings	Probability of reenlistment	Total reenlistees	Four-year survivors
BT	Boiler technicians	BT	.20	180	905
MM	Machinists mates	MM	.21	242	1,144
EM/IC	Electricians	EM,IC	.12	137	1,149
EN	Enginemen	EN	.13	86	645
HT	Hull technicians	HT	.14	107	790
ET/FT	Weapons control	ET,FT	.17	120	726
SENSOR	Sensor systems	ST,EW,OT	.26	111	432
RM/CT	Radiomen/communications	RM,CT	.29	291	1,011
AvWep	Aviation weapons	AT,AW,AQ,AC,AX	.25	293	1,169
AvM	Aviation maintenance	AM,AD,AE,AO	.22	524	2,355
ABASPR	Aviation support	AS,PR,AB	.22	142	649
DT/HM	Health care	DT,HM	.19	442	2,371
LOG	Logistics	MS,SK,AK,DK,SH	.25	377	1,502
ADMIN	Administration	PN,YN,AZ,PC,AG	.30	317	1,041
Overall			.21	3,389	15,949

[a]Survivors listed in table 1 refer to those recruits who began service during CY 1973 and had completed at least four years of service by Dec. 1977. Table 4 survivors are defined to include only those (table 1) survivors who did not have six-year (first) terms of obligation, since true six-year obligors (6YOs) are not automatically at the reenlistment decision-point after four years.

TABLE 5

EFFECTS OF PRE-SERVICE AND EARLY IN-SERVICE CHARACTERISTICS ON REENLISTMENT CHANCES OF FOUR-YEAR SURVIVORS IN THE 1973 COHORT

(By major rating/group)

Rating/ group	Intercept chance[a]	Age			Non-Caucasian	Dependents	RTC1
		17[b]	19	20P			
BT	.21				.18	.18	
MM	.10				.10	.16	
EM/IC	.06					.16	
EN	.17					.16	
HT	.16		-.08		.26		
ET/FT	.09				.20	.17	
SENSOR	.26				.39		
RM/CT	.25				.14		
AvWep	.16		.07			.14	
AvM	.22				.16	.07	
ABASPR	.22						
DT/HM	.18	.09			.07		.04
LOG	.17		.06	.10	.10	.13	-.04
ADMIN	.22	.07	___	.09	.08	___	.07
Total significant effects		2	2	2	10	8	3

TABLE 5 (CONT'D)

Rating/ group	RTC2	MG3U	MG3L4	DEP	EDLT12	EDGT12
BT	-.06					
MM	.04		.06			
EM/IC						
EN			.11		.12	
HT						
ET/FT						
SENSOR	-.09			-.11	-.12	
RM/CT		.07				
AvWeP						
AvM			.09	-.04		.10
ABASPR				-.07		
DT/HM	.08	.05				
LOG		.05	3L(.05) 4(.16)			
ADMIN	.06					-.08
Total significant effects	5	3	4	3	2	2

[a]These intercept estimates are for a 1973 cohort recruit who survived his first (four-year) term of service and who had the following characteristics: Age (18); Race (Caucasian); Mental Group (I or II); Dependents (none); RTC (Orlando); Education (12 years); DEP status (no delayed entry); Activity, Rating and Tour-type (modal--see figure 3 for details).

[b]This and all other columns (except the intercept chance) show any significant (5 > 1.64) effects on expected reenlistment chances of substituting one given non-intercept characteristic for its counterpart in the intercept.

TABLE 6

EFFECTS OF ACTIVITY, RATING AND TOUR-TYPE CHARACTERISTICS
ON REENLISTMENT RATES OF FOUR-YEAR SURVIVORS IN THE 1973 COHORT

(By major rating/group)[a]

Rating/ group	Intercept chance[b]	Intercept	Activity	Intercept	Rating	Intercept	Tour-type
BT	.21	SURF		BT		SH+S	TSEA(.12)
MM	.10	SURF	SUB(.09) AUX(.05)	MM		S	SHORE(.08) TSEA(.04)
EM/IC	.06	Other	SUB(.14) REPAIR(.04) AMPH(.04)	EM		S	
EN	.17	Other	AMPH(-.11)	EN		SH	
HT	.16	Other	CV(-.10)	HT		SH	
ET/FT	.09	Other		ET		S	
SENSOR	.26	Other		ST	MISC(.32)	SH	
RM/CT	.25	Other	REPAIR(-.15) AUX(-.14)	RM		SH	
AvWeP	.16	SBA		AT	AQ(-.07)	SH	SEA(.05) TSEA(.10)
AvM	.22	Other	CV(-.15) SBA(-.06)	AM	AE(-.09) AD(-.05)	SH	SEA(.17) TSEA(.13)
ABASPR	.22	Other	CV(-.15)	AB		TS+SH	SEA(.20)
DT/HM	.18	Other		HM	DT(-.08)	S+TS	SHORE(-.06)
LOG	.17	Other		MS	SH(.23)	S	
ADMIN	.22	Other	SURF(-.11) CV(-.09)	PN	PC(-.16) AG(-.10)	SH	SEA(.11) TSEA(.17)

[a]See appendix F for details.

[b]Taken from table 4 (above).

These tables also reveal that, for ratings/groups in which a given non-intercept characteristic does have a significantly different effect on the reenlistment chance of a survivor from the effect of its intercept counterpart, the direction (sign) of its effect is generally consistent across ratings/groups. Among the pre-service and early in-service characteristics assessed in table 5, only age 19 (with hull technicians), RTC1 (with logistics ratings), and RTC2 (with sensor systems ratings and boiler technicians) exhibit signs contrary to this general pattern of directional consistency.[1]

Despite this consistency, most of the pre-service and early in-service characteristics exhibited little or no truly general relation (across ratings/groups) to reenlistment of four-year survivors. Age differences affected reenlistment only in five ratings/groups (HTs, AvWeps, DT/HMs, LOGs and ADMIN). RTC location made a difference only in six (BTs, MMs, SENSORs, DT/HMs, LOGs and ADMINs). Mental group distinctions were relevant to reenlistment only in six major ratings/groups (MMs, ENs, RM/CTs, AvMs, DT/HMs and LOGs). Education differences mattered only in four (ENs, SENSORs, AvMs, and ADMINs), and participation in the Delayed Entry Program (DEP) affected reenlistment chances only for SENSORs, AvMs, and ABASPR personnel.

On the other hand, both a survivor's race and whether or not he had dependents bore an important general relation to his probability of reenlistment. In ten of the 14 major ratings/groups, a non-Caucasian survivor was considerably more likely to reenlist than a Caucasian, other differences held constant. Similarly, in eight ratings/groups, survivors with dependents were appreciably more likely to reenlist than those without them, other factors held equal.

Interestingly, among activities, first-term submarine duty is always favorable to reenlistment, at least where it has an effect significantly different from the intercept, while first-term duty on a carrier is always unfavorable where it has a distinctive impact. Other activity assignments had varying effects depending on the rating/group considered. Table 6 also shows that, where tour-type did have an impact upon reenlistment chances, regular and toured sea duty were almost always more favorable than shore duty, and toured-sea was generally more favorable than regular sea duty.

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[1]Educational level (both "greater than 12 years" and less than 12 years) also shows different directions in its effect (relative to the intercept) depending on the rating/group examined, but EDGT12 and EDLT12 each have significant effects in only two ratings/groups.

None of the activity or tour-type assignments had a significant impact on reenlistment across more than half the ratings/groups. Assignment to a carrier (CV) did make a difference in four, and assignment to regular or toured-sea duty mattered in seven ratings/groups. But none of the other activity or tour categories had effects even that widespread on reenlistment.

APPLICATIONS OF REENLISTMENT ESTIMATES

The reenlistment probabilities presented in this paper can be used in at least two major ways. First, they could facilitate the search for reenlistees. Second, they could be used along with the survival results to develop a strategy for jointly maximizing first-term survival and reenlistment of survivors through a formal rating assignment procedure.

The Search for Reenlistees

Tables 5 and 6 can be used together to rank first-term survivors according to their reenlistment chances. Those survivor types with the highest expected reenlistment rates could be sought out first. The most general rank-ordering procedure would ignore survivors' first-term ratings in developing priorities among survivors; it would merely calculate which of all survivors are most likely to reenlist. For illustrative purposes, table 7 indicates the top ten types in such a general rank-order scheme.[1]

On the other hand, such a scheme may be inadequate. The Navy may want to insure that it reenlists a reasonable number of men with prior experience in each of the major ratings/groups. In either event, the information in tables 5 and 6 can be adapted to the appropriate scheme.

Jointly Maximizing Survival and Reenlistment

A second application for these reenlistment estimates would be to develop a strategy for first-term rating, activity, and tour-type assignments that jointly optimizes first-term survival of recruits and reenlistment of first-term survivors. As noted above, to do this in comprehensive fashion will require a formal, programmed procedure. However, some initial insight into this strategy can be derived from the information in table 8, which displays those recruit characteristics most favorably affecting first-term survival and also reenlistment of four-year survivors, respectively, for each major rating/group.

Five basic patterns of relations between survival and reenlistment findings will be found in table 8. As an example of the first pattern, the table shows that boiler technicians who were 19 years or older (at entry) had a better survival chance than other age groups, other things equal, but that, among boiler technicians

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[1]See appendix B for the precise calculation technique. The probabilities listed in table 7 are approximations only (based on tables 5 and 6).

TABLE 7

TOP TEN REENLISTEE BETS[a]

(1973 COHORT)

Rank	Rating/group	Survivor reenlistment chance	Pre-service and in-service profile									
			AGE	RACE	PDEPS	RTC	MG	DEP	ED	ACT	RAT	TOUR
1	SENSORS	97	ANY	NC	ANY	1 or 3	ANY	NO	GE12	ANY	MISC	ANY
2	SENSORS	89	ANY	NC	ANY	2	ANY	NO	GE12	ANY	MISC	ANY
3	LOGISTICS	89	20P	NC	Yes	2 or 3	4	NO	ANY	ANY	SH	ANY
4	SENSORS	86	ANY	NC	ANY	1 or 3	ANY	YES	GE12	ANY	MISC	ANY
5	SENSORS	85	ANY	NC	ANY	1 or 3	ANY	NO	LT12	ANY	MISC	ANY
6	LOGISTICS	85	19	NC	YES	2 or 3	4	NO	ANY	ANY	SH	ANY
7	LOGISTICS	85	20P	NC	YES	1	4	NO	ANY	ANY	SH	ANY
8	LOGISTICS	81	19	NC	YES	1	4	NO	ANY	ANY	SH	ANY
9	AV. MAINT.	81	ANY	NC	YES	ANY	3L4	NO	GT12	Not CV/SBA	ANY	SEA
10	LOGISTICS	80	20P	NC	YES	2 or 3	3UL4	NO	ANY	ANY	SH	ANY

[a]For illustrative purposes only. See appendix B for precise calculation technique. The chances listed in table 7 are approximations only (based on tables 5 and 6).

TABLE 8

MOST FAVORABLE RECRUIT PROFILES
FOR BOTH SURVIVAL AND REENLISTMENT

(By major rating/group)

Rating/ group	Age		Race		PDERS		PTC		MG		ED		DEP		Activity		Rating		Tour-type	
	Survive	Reenlist	Survive	Reenlist	Survive	Reenlist	Survive	Reenlist	Survive	Reenlist	Survive	Reenlist	Survive	Reenlist	Survive	Reenlist	Survive	Reenlist	Survive	Reenlist
BT	19,20P	a		Non-cauc.	No	Yes		1 or 3	1+2 3L4		GE12		Yes		CV				TSEA	TSEA NON-SEA
MM	18+			Non-cauc.		Yes		2		3L4			Yes		SUB	SUB, AUX				
EM/IC						Yes	1 or 3								SUB REPAIR AMPH	SUB				
EN						Yes	2 or 3			3L4	LT12	LT12	Yes		Non-AMPH	Non-AMPH			TSEA	
RT		Not -19		Non-cauc.			1 or 3				GE12				Non-SURF	Non-CV				
RT/FT				Non-cauc.		Yes	1 or 3				GE11		Yes		Non-AUX					
SENSOR				Non-cauc.			3	1 or 3				GE12	Yes	No			Non-OT	MISC		
RM/CT				Non-cauc.						3U						Non-REP or AUX				
AvWeP		19				Yes	3						Yes					Non-AQ	TSEA	TSEA SEA
AvM	18+		Cauc.	Non-cauc.		Yes	3		3+4	3L4	GT12	GT12	Yes	No	Non-CV or SBA	Non-CV or SBA	AE	Non-AE or AD		SEA+TSEA
ABASFR					No						LT11 GE12		Yes	No		Non-CV	AS			SEA
UT/HM	18+	17	Non-cauc.	Non-cauc.			3	1,2		3U	GE12						HM	HM		NON-SHORE
LOG	19+	19+		Non-cauc.		Yes	2 or 3	2 or 3		3+4	GE12		Yes		Non-SURF or AMPH		SH	SH	TSEA	
ADMIN		17,20P		Non-cauc.				1+2	3L4			LE12				Non-SURF or CV	AG or AZ	Non-PC or AG		TSEA

[a]"Blank" means "ANY": the variable did not have an independent effect.

Note: boxed pairs indicate a conflicting pattern.

who survived four years, age differences had no independent effect on reenlistment chances. This is important. It indicates that the Navy could optimize the age profile of BTs for survival purposes without adversely affecting reenlistment chances of BTs who survive four years.

Exemplary of the second type of relation is that the racial profile of BTs has no independent effect on their survival rates, but that those who survive four years and who are non-Caucasian reenlist at considerably better rates, other things equal, than Caucasian BT survivors. This means that the Navy could in principle optimize the racial profile of BTs with respect to reenlistment without adversely affecting survival probabilities among first-term boiler technicians. The social acceptability of such a strategy is a separate issue.

Illustrative of the third pattern is the lack of effect of age differences on survival and reenlistment rates of enginemen (ENs), for example. No effects are evident. Consequently, the Navy could use any ratings/groups displaying this pattern as a "catch-all" location for any recruits who would be less favorably affected than other recruits by assignment to another rating/group.

A fourth relation emerges in table 8, for example, while examining the effect of mental group differences on survival and reenlistment among aviation maintenance ratings. First-term recruits in these ratings survive best if they are in MG 3 or 4, but four-year survivors from MG 3 lower or 4 reenlist most often, other things equal. In these ratings, therefore, there is only some congruence between mental groups most favorable for survival and reenlistment: AvM survivors in MG3U will reenlist less often than those in MG3L4, yet MG3U recruits will survive as often as those in MG3L4, other things equal. In such situations the Navy would do best (in jointly maximizing survival and reenlistment within the given rating/group) to assign only recruits at the intersection of the profiles most favorable for survival and reenlistment, e.g., MG3L4 (not 3U) to AvMs, other things equal.

The fifth and final pattern exhibited in table 8 can be seen, for instance, in the health care ratings (DT/HM) with respect to age differences. Here there is a direct conflict between the profile most favorable to survival (18 years or older at entry), and that most favorable to reenlistment (17 years at entry). In this type of situation more than in any other, a clear-cut decision must be made: what counts most, survival or reenlistment? If survival counts most, the appropriate strategy is to assign older recruits to health care ratings, other things equal. If reenlistment is the higher priority, 17 year olds should be preferred in those ratings.

Fortunately, this fifth (conflict) pattern occurs much less frequently than do the other four types just discussed, at least for the 1973 cohort. This means that, with careful planning, very few adverse effects on reenlistment rates will necessarily result from efforts to increase first-term survival rates through a formal occupational rating assignment procedure. More generally, the relative infrequency of this conflict pattern indicates that a strategy for increasing both survival and reenlistment rates by occupational assignment will confront no major obstacles wherein maximizing one value (higher survival rates) leads to reduced attainments on a second value (higher reenlistment chances).

From a practical standpoint, the reenlistment rates (of survivors) presented above will be far less useful by themselves than would be reenlistment rates at time of entry for given types of recruits (each given by a particular pre-service/early in-service profile), depending on which rating/group they might be assigned to. Only the latter estimates can be used directly in a first-term assignment strategy.

To calculate these (entry-point) reenlistment chances across rating groups for the CY 1973 cohort merely involves multiplying a particular recruit type's average first-term survival chances (table 2) by his reenlistment rate conditional on surviving the first-term (table 5). Table 9 illustrates the results for the intercept-type recruit. By themselves, however, even the rates in this table are of limited value.

To begin profitably employing these (table 9) estimates, comparable rates for all other types of recruits also need to be calculated and then used as input to a procedure for identifying the particular rating assignment structure which would maximize the total expected number of reenlistees across all the recruits being assigned.

Maximizing the total number of reenlistees per se is not the only, nor necessarily the most sensible, goal. First-term billeting requirements, the relative importance of first-term survival compared to reenlistment, as well as other types of constraints and weights alluded to in the first section all need consideration in formalizing such an assignment strategy.

Preliminary investigation shows that the services currently employ potentially adaptable software for this problem (such as COMPASS), but several alternatives also have been examined, including both a network-type routine and a sensitivity analysis of linear programming iterations.

TABLE 9

REENLISTMENT CHANCES (AT ENTRY) OF
AN INTERCEPT RECRUIT, BY RATING/GROUP

(In percentages)

Rating/ group	Four-year survival chance[a]	Reenlistment chance if survive-4[b]	Reenlistment chance (at entry)[c]
BT	56	21	12
MM	57	10	6
EM/IC	67	6	4
EN	56	17	10
HT	72	16	12
ET/FT	78	9	7
SENSOR	83	26	22
RM/CT	70	25	18
AvWEP	76	16	12
AvM	73	22	16
ABASPR	60	22	13
DT/HM	78	18	14
LOG	58	17	10
ADMIN	66	22	15

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[a]Taken from table 2, which also contains the intercept definition.

[b]Taken from table 5.

[c]These percentages are the products of relevant figures in the the first two columns.

REFERENCES

1. Center for Naval Analyses, Research Contribution 366, "Estimating Four-Year Survival and Reenlistment Probabilities for Boiler Technicians and Machinist's Mates," by Jean Fletcher, Unclassified, Feb 1979

2. Goldberger, Arthur, Econometric Theory, John Wiley & Sons, New York, 1964

3. Hald, A., Statistical Tables and Formulas, John Wiley & Sons, New York, 1952

APPENDIX A

THE 1973 COHORT

APPENDIX A

THE 1973 COHORT

The data used to estimate first-term retention probability is a longitudinal history of the Calendar Year 1973 cohort.[1] Figure A-1 outlines the data base construction process. For each non-prior service, male recruit entering the regular Navy in CY 1973, background information and recruit training center (RTC) data is extracted from the SCAT data tape created by AFEES. This is then merged with extracts of the June and December Enlisted Master Records (EMRs) for 1973 through 1977. Loss data is incorporated from MARDAC and BuPers loss tapes and schooling data is added from the NPRDC (Naval Personnel Research and Development Center) tapes. Finally, information from the Navy change tape for the first 4 months of 1978 is added to insure identification of non-broken service reenlistments. The resulting data base is a complete longitudinal history of the first four years of service for the CY 1973 cohort.

For each rating or occupational group of interest, an extract of the longitudinal file is made which contains pre-service and early in-service characteristics, rating assignment, and variables describing the first regular tour of duty. (See reference 1 for a listing of the extraction program).

An observation is included in the sample if the individual has completed at least six months of service, has a four- or six-year term of obligation, and has been rated or designated in the rating of interest. Unrated men who have successfully completed a class A school which feeds the rating are also included. Three-year obligors are not included because the Navy no longer has a three-year USN enlistment program.

The first regular tour of duty is determined by scanning the record of each man starting with the onboard activity of the earliest available EMR. If the activity type indicates a training activity, the scan continues to the next EMR. This process continues until a non-training duty is obtained or the individual is lost (no more EMRs exist). The accounting category code is used to eliminate observations whose only non-training activity was not a regular tour of duty. For example, some recruits were confined due to medical or disciplinary problems and subsequently lost from the Navy without having reported to regular duty stations.

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[1]This appendix is taken from reference 1, with several minor changes.

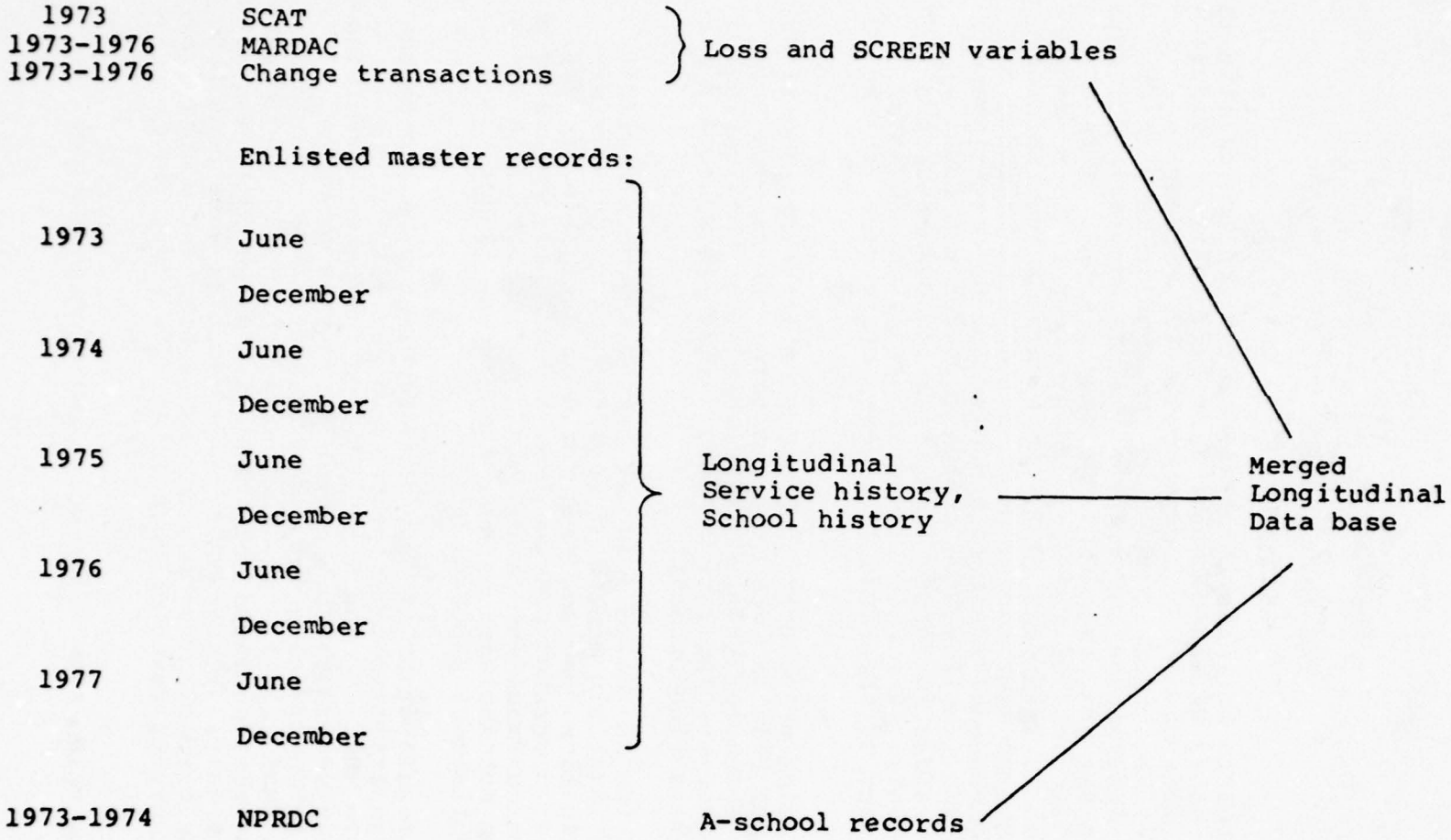

FIG.A-1: CY 1973 COHORT HISTORY FILE (1973-1977)

The activity group is determined by classifying the information in the activity type field into homogeneous groups. Table A-1 shows the components of each group.

The sea, toured sea, and shore variables are created using the sea/shore code assigned to each man for rotation purposes. Table A-2 details the construction of these variables.

TABLE A-1

ACTIVITY GROUPS

Surface combatants	Repair	Land-based air	Auxiliaries/Patrol	
CA	AD	HTR	ATF	PCH
CG	AR	RHAW	ATS	PG
CGN	ARS	TRAR	AE	MSO
CLG	AS	TRAW	AF	DUS
DD	Sea-based air	VC	AFS	
DDG	HC	VQ	AFDL	
DE	HM	VP	AFDM	
DEG	HS	VQ	AFDB	
DLG	HSL	VR	AG	
DLGN	MFA	VRC	AGF	
FF	VA	VRF	AGP	
FFG	VAW	VT	AGDE	
Carriers	VAQ	VX	AGDS	
CV	VG	VXN	AGEH	
CVA	VH	VW	AGFF	
CVAN	VF	Amphibious	AH	
CVN	VS	LCC	AO	
CVS	VXE	LHA	AOE	
CVT	SEABEES	LKA	AOR	
Submarines	CBE	LPA	ARD	
SS	CBJ	LPD	ARDM	
SSN	BMU	LPH	ASR	
SSBN		LSD	AVM	
AGSS		LST	AOG	

TABLE A-2

SEA/SHORE CATEGORIES

Category	Onboard sea/shore code
Sea	2
Shore	1, 3, 5, 6[a]
Toured sea (non-rotated ships)	4

[a] 1 Shore duty
3 Overseas duty
5 Neutral duty
6 Preferred overseas shore duty

APPENDIX B

THE SIMPLE PROBIT MODEL

APPENDIX B

THE SIMPLE PROBIT MODEL

In estimating a recruit's chances of completing four years of service from pre-service and in-service characteristics, we would like to examine the effect of altering each characteristic while holding all others constant.

A common method for doing this specifies the variable to be estimated (survival probability) as a linear function of the other variables.[1] Ordinary least squares (OLS) regression would then provide estimates of the survival probability and the separate effect of each independent (explanatory) variable. OLS is not strictly appropriate, however, when using a dichotomous dependent variable as we do here. (Our data indicate that a man either did or did not survive four years of service. The dependent variable can therefore take on only two values, and is dichotomous.)

Several appropriate techniques do exist for coping with dichotomous dependent variables, including the Probit model. If we let P denote the probability that a man will not complete four years of service, then the probit equation to be estimated is

$$\text{Prob}(\text{loss} \mid x) = \int_{-\infty}^{B'x/\sigma} \frac{1}{\sqrt{2\pi}} \left(e^{-Z^2/2}\right) dZ \qquad (1)$$

where x is a vector of pre-service and in-service characteristics and B is the vector of coefficients of these characteristics. Estimating the B coefficients using maximum likelihood methods and evaluating the integral gives the estimated loss probability. See reference 2 for a more detailed discussion of the Probit model.

Probit model estimates of the effects of pre-service and service characteristics on four-year recruit survival probabilities need to be treated with some caution. Specifically, one cannot correctly add the probability changes (given in tables 2 and 3) associated with more than one non-intercept probability. The proper procedure involves adding the relevant probit coefficients (given in appendix D) and then converting the sum, which represents

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[1]This and the following paragraph are modified versions of material in reference 1.

an area under the standard normal density curve, into a probability (of four-year loss). Subtracting this estimate from 1.0 then yields the statistically correct estimate of four-year survival probability for the given recruit type of interest in a particular major rating/group.

For example, in the text of this report we roughly calculated the survival probability of a 17 year old non-Caucasian who went to boot camp at Great Lakes (RTC 1) but was otherwise the intercept type. His estimated survival chance in the health care group was shown to be approximately 63 percent. To properly calculate his survival chance, we refer to the detailed probit estimates for the health care group in appendix D (table D-12). Table D-12 indicates that the intercept coefficient is -.786, while the respective coefficients associated with being 17 years old, non-Caucasian, and from RTC1 are .137, -.138, and .474. The sum of these four coefficients is -.313, which represents the "u" value in table B-1. When this sum is converted to its associated Φ in table B-1, we arrive at a four-year loss estimate of .3783. Subtracting this loss probability from 1.0 yields a four-year survival probability estimate for this type of recruit of .622 (62.2 percent), a value close but not identical to the rough estimate of 63 percent given in the text.

The reenlistment chances of CY 1973 cohort recruits who survived their first (four-year) term of service were also estimated by a Probit model. Since the reenlistment decision is a conditional one (a man must first survive the first term), the equation we estimate is

$$\text{Prob(reenlisting}|\,s,x) = \int_{-\infty}^{B'x/\sigma} \frac{1}{\sqrt{2\pi}} \left(e^{-z^2/2}\right) dz$$

where s is the conditioning fact of four-year survival.

Probit estimates of the effects of pre-service and service characteristics on reenlistment need to be interpreted carefully, as did the comparable survival estimates. The proper technique for calculating a particular survivor's reenlistment chance is identical to that for deriving a recruit's survival chance (see above), with one modification. After adding the relevant probit coefficients (given in appendix F) we merely convert the sum to a probability (of reenlistment) using table B-1. We do not then need to subtract this probability from 1.0, as we did in calculating survival rates. This is merely a mechanical difference due to the way survival was estimated compared to reenlistment, but still needs to be understood when using the probit coefficients in appendix F.

TABLE B-1

THE CUMULATIVE STANDARDIZED NORMAL DISTRIBUTION FUNCTION*

$$\Phi(u) = \frac{1}{\sqrt{2\pi}} \int_{-\infty}^{u} e^{-\frac{x^2}{2}} dx \quad \text{FOR} \quad -4{\cdot}99 \leq u \leq 0{\cdot}00.$$

u	·00	·01	·02	·03	·04	·05	·06	·07	·08	·09
− ·0	·5000	·4960	·4920	·4880	·4840	·4801	·4761	·4721	·4681	·4641
− ·1	·4602	·4562	·4522	·4483	·4443	·4404	·4364	·4325	·4286	·4247
− ·2	·4207	·4168	·4129	·4090	·4052	·4013	·3974	·3936	·3897	·3859
− ·3	·3821	·3783	·3745	·3707	·3669	·3632	·3594	·3557	·3520	·3483
− ·4	·3446	·3409	·3372	·3336	·3300	·3264	·3228	·3192	·3156	·3121
− ·5	·3085	·3050	·3015	·2981	·2946	·2912	·2877	·2843	·2810	·2776
− ·6	·2743	·2709	·2676	·2643	·2611	·2578	·2546	·2514	·2483	·2451
− ·7	·2420	·2389	·2358	·2327	·2297	·2266	·2236	·2206	·2177	·2148
− ·8	·2119	·2090	·2061	·2033	·2005	·1977	·1949	·1922	·1894	·1867
− ·9	·1841	·1814	·1788	·1762	·1736	·1711	·1685	·1660	·1635	·1611
−1·0	·1587	·1562	·1539	·1515	·1492	·1469	·1446	·1423	·1401	·1379
−1·1	·1357	·1335	·1314	·1292	·1271	·1251	·1230	·1210	·1190	·1170
−1·2	·1151	·1131	·1112	·1093	·1075	·1056	·1038	·1020	·1003	·09853
−1·3	·09680	·09510	·09342	·09176	·09012	·08851	·08691	·08534	·08379	·08226
−1·4	·08076	·07927	·07780	·07636	·07493	·07353	·07215	·07078	·06944	·06811
−1·5	·06681	·06552	·06426	·06301	·06178	·06057	·05938	·05821	·05705	·05592
−1·6	·05480	·05370	·05262	·05155	·05050	·04947	·04846	·04746	·04648	·04551
−1·7	·04457	·04363	·04272	·04182	·04093	·04006	·03920	·03836	·03754	·03673
−1·8	·03593	·03515	·03438	·03362	·03288	·03216	·03144	·03074	·03005	·02938
−1·9	·02872	·02807	·02743	·02680	·02619	·02559	·02500	·02442	·02385	·02330
−2·0	·02275	·02222	·02169	·02118	·02068	·02018	·01970	·01923	·01876	·01831
−2·1	·01786	·01743	·01700	·01659	·01618	·01578	·01539	·01500	·01463	·01426
−2·2	·01390	·01355	·01321	·01287	·01255	·01222	·01191	·01160	·01130	·01101
−2·3	·01072	·01044	·01017	$\cdot 0^{1}9903$	$\cdot 0^{1}9642$	$\cdot 0^{1}9387$	$\cdot 0^{1}9137$	$\cdot 0^{1}8894$	$\cdot 0^{1}8656$	$\cdot 0^{1}8424$
−2·4	$\cdot 0^{1}8198$	$\cdot 0^{1}7976$	$\cdot 0^{1}7760$	$\cdot 0^{1}7549$	$\cdot 0^{1}7344$	$\cdot 0^{1}7143$	$\cdot 0^{1}6947$	$\cdot 0^{1}6756$	$\cdot 0^{1}6569$	$\cdot 0^{1}6387$
−2·5	$\cdot 0^{1}6210$	$\cdot 0^{1}6037$	$\cdot 0^{1}5868$	$\cdot 0^{1}5703$	$\cdot 0^{1}5543$	$\cdot 0^{1}5386$	$\cdot 0^{1}5234$	$\cdot 0^{1}5085$	$\cdot 0^{1}4940$	$\cdot 0^{1}4799$
−2·6	$\cdot 0^{1}4661$	$\cdot 0^{1}4527$	$\cdot 0^{1}4396$	$\cdot 0^{1}4269$	$\cdot 0^{1}4145$	$\cdot 0^{1}4025$	$\cdot 0^{1}3907$	$\cdot 0^{1}3793$	$\cdot 0^{1}3681$	$\cdot 0^{1}3573$
−2·7	$\cdot 0^{1}3467$	$\cdot 0^{1}3364$	$\cdot 0^{1}3264$	$\cdot 0^{1}3167$	$\cdot 0^{1}3072$	$\cdot 0^{1}2980$	$\cdot 0^{1}2890$	$\cdot 0^{1}2803$	$\cdot 0^{1}2718$	$\cdot 0^{1}2635$
−2·8	$\cdot 0^{1}2555$	$\cdot 0^{1}2477$	$\cdot 0^{1}2401$	$\cdot 0^{1}2327$	$\cdot 0^{1}2256$	$\cdot 0^{1}2186$	$\cdot 0^{1}2118$	$\cdot 0^{1}2052$	$\cdot 0^{1}1988$	$\cdot 0^{1}1926$
−2·9	$\cdot 0^{1}1866$	$\cdot 0^{1}1807$	$\cdot 0^{1}1750$	$\cdot 0^{1}1695$	$\cdot 0^{1}1641$	$\cdot 0^{1}1589$	$\cdot 0^{1}1538$	$\cdot 0^{1}1489$	$\cdot 0^{1}1411$	$\cdot 0^{1}1395$
−3·0	$\cdot 0^{1}1350$	$\cdot 0^{1}1306$	$\cdot 0^{1}1264$	$\cdot 0^{1}1223$	$\cdot 0^{1}1183$	$\cdot 0^{1}1144$	$\cdot 0^{1}1107$	$\cdot 0^{1}1070$	$\cdot 0^{1}1035$	$\cdot 0^{1}1001$
−3·1	$\cdot 0^{1}9676$	$\cdot 0^{1}9351$	$\cdot 0^{1}9043$	$\cdot 0^{1}8740$	$\cdot 0^{1}8447$	$\cdot 0^{1}8164$	$\cdot 0^{1}7888$	$\cdot 0^{1}7622$	$\cdot 0^{1}7364$	$\cdot 0^{1}7114$
−3·2	$\cdot 0^{1}6871$	$\cdot 0^{1}6637$	$\cdot 0^{1}6410$	$\cdot 0^{1}6190$	$\cdot 0^{1}5976$	$\cdot 0^{1}5770$	$\cdot 0^{1}5571$	$\cdot 0^{1}5377$	$\cdot 0^{1}5190$	$\cdot 0^{1}5009$
−3·3	$\cdot 0^{1}4834$	$\cdot 0^{1}4665$	$\cdot 0^{1}4501$	$\cdot 0^{1}4342$	$\cdot 0^{1}4189$	$\cdot 0^{1}4041$	$\cdot 0^{1}3897$	$\cdot 0^{1}3758$	$\cdot 0^{1}3624$	$\cdot 0^{1}3495$
−3·4	$\cdot 0^{1}3369$	$\cdot 0^{1}3248$	$\cdot 0^{1}3131$	$\cdot 0^{1}3018$	$\cdot 0^{1}2909$	$\cdot 0^{1}2803$	$\cdot 0^{1}2701$	$\cdot 0^{1}2602$	$\cdot 0^{1}2507$	$\cdot 0^{1}2415$
−3·5	$\cdot 0^{1}2326$	$\cdot 0^{1}2241$	$\cdot 0^{1}2158$	$\cdot 0^{1}2078$	$\cdot 0^{1}2001$	$\cdot 0^{1}1926$	$\cdot 0^{1}1854$	$\cdot 0^{1}1785$	$\cdot 0^{1}1718$	$\cdot 0^{1}1653$
−3·6	$\cdot 0^{1}1591$	$\cdot 0^{1}1531$	$\cdot 0^{1}1473$	$\cdot 0^{1}1417$	$\cdot 0^{1}1363$	$\cdot 0^{1}1311$	$\cdot 0^{1}1261$	$\cdot 0^{1}1213$	$\cdot 0^{1}1166$	$\cdot 0^{1}1121$
−3·7	$\cdot 0^{1}1078$	$\cdot 0^{1}1036$	$\cdot 0^{1}9961$	$\cdot 0^{1}9574$	$\cdot 0^{1}9201$	$\cdot 0^{1}8842$	$\cdot 0^{1}8496$	$\cdot 0^{1}8162$	$\cdot 0^{1}7841$	$\cdot 0^{1}7532$
−3·8	$\cdot 0^{1}7235$	$\cdot 0^{1}6948$	$\cdot 0^{1}6673$	$\cdot 0^{1}6407$	$\cdot 0^{1}6152$	$\cdot 0^{1}5906$	$\cdot 0^{1}5669$	$\cdot 0^{1}5442$	$\cdot 0^{1}5223$	$\cdot 0^{1}5012$
−3·9	$\cdot 0^{1}4810$	$\cdot 0^{1}4615$	$\cdot 0^{1}4427$	$\cdot 0^{1}4247$	$\cdot 0^{1}4074$	$\cdot 0^{1}3908$	$\cdot 0^{1}3747$	$\cdot 0^{1}3594$	$\cdot 0^{1}3446$	$\cdot 0^{1}3304$
−4·0	$\cdot 0^{1}3167$	$\cdot 0^{1}3036$	$\cdot 0^{1}2910$	$\cdot 0^{1}2789$	$\cdot 0^{1}2673$	$\cdot 0^{1}2561$	$\cdot 0^{1}2454$	$\cdot 0^{1}2351$	$\cdot 0^{1}2252$	$\cdot 0^{1}2157$
−4·1	$\cdot 0^{1}2066$	$\cdot 0^{1}1978$	$\cdot 0^{1}1894$	$\cdot 0^{1}1814$	$\cdot 0^{1}1737$	$\cdot 0^{1}1662$	$\cdot 0^{1}1591$	$\cdot 0^{1}1523$	$\cdot 0^{1}1458$	$\cdot 0^{1}1395$
−4·2	$\cdot 0^{1}1335$	$\cdot 0^{1}1277$	$\cdot 0^{1}1222$	$\cdot 0^{1}1168$	$\cdot 0^{1}1118$	$\cdot 0^{1}1069$	$\cdot 0^{1}1022$	$\cdot 0^{1}9774$	$\cdot 0^{1}9345$	$\cdot 0^{1}8934$
−4·3	$\cdot 0^{1}8540$	$\cdot 0^{1}8163$	$\cdot 0^{1}7801$	$\cdot 0^{1}7455$	$\cdot 0^{1}7124$	$\cdot 0^{1}6807$	$\cdot 0^{1}6503$	$\cdot 0^{1}6212$	$\cdot 0^{1}5934$	$\cdot 0^{1}5668$
−4·4	$\cdot 0^{1}5413$	$\cdot 0^{1}5169$	$\cdot 0^{1}4935$	$\cdot 0^{1}4712$	$\cdot 0^{1}4498$	$\cdot 0^{1}4294$	$\cdot 0^{1}4098$	$\cdot 0^{1}3911$	$\cdot 0^{1}3732$	$\cdot 0^{1}3561$
−4·5	$\cdot 0^{1}3398$	$\cdot 0^{1}3241$	$\cdot 0^{1}3092$	$\cdot 0^{1}2949$	$\cdot 0^{1}2813$	$\cdot 0^{1}2682$	$\cdot 0^{1}2558$	$\cdot 0^{1}2439$	$\cdot 0^{1}2325$	$\cdot 0^{1}2216$
−4·6	$\cdot 0^{1}2112$	$\cdot 0^{1}2013$	$\cdot 0^{1}1919$	$\cdot 0^{1}1828$	$\cdot 0^{1}1742$	$\cdot 0^{1}1660$	$\cdot 0^{1}1581$	$\cdot 0^{1}1506$	$\cdot 0^{1}1434$	$\cdot 0^{1}1366$
−4·7	$\cdot 0^{1}1301$	$\cdot 0^{1}1239$	$\cdot 0^{1}1179$	$\cdot 0^{1}1123$	$\cdot 0^{1}1069$	$\cdot 0^{1}1017$	$\cdot 0^{1}9680$	$\cdot 0^{1}9211$	$\cdot 0^{2}8765$	$\cdot 0^{2}8339$
−4·8	$\cdot 0^{2}7933$	$\cdot 0^{2}7547$	$\cdot 0^{2}7178$	$\cdot 0^{2}6827$	$\cdot 0^{2}6492$	$\cdot 0^{2}6173$	$\cdot 0^{2}5869$	$\cdot 0^{2}5580$	$\cdot 0^{2}5304$	$\cdot 0^{2}5042$
−4·9	$\cdot 0^{2}4792$	$\cdot 0^{2}4554$	$\cdot 0^{2}4327$	$\cdot 0^{2}4111$	$\cdot 0^{2}3906$	$\cdot 0^{2}3711$	$\cdot 0^{2}3525$	$\cdot 0^{2}3348$	$\cdot 0^{2}3179$	$\cdot 0^{2}3019$

Example: $\Phi(-3{\cdot}57) = \cdot 0^{2}1785 = 0{\cdot}0001785.$

TABLE B-1 (CONT'D)

$$\Phi(u) = \frac{1}{\sqrt{2\pi}} \int_{-\infty}^{u} e^{-\frac{u^2}{2}} du \quad \text{FOR} \quad 0.00 \leq u \leq 4.99.$$

u	.00	.01	.02	.03	.04	.05	.06	.07	.08	.09
.0	.5000	.5040	.5080	.5120	.5160	.5199	.5239	.5279	.5319	.5359
.1	.5398	.5438	.5478	.5517	.5557	.5596	.5636	.5675	.5714	.5753
.2	.5793	.5832	.5871	.5910	.5948	.5987	.6026	.6064	.6103	.6141
.3	.6179	.6217	.6255	.6293	.6331	.6368	.6406	.6443	.6480	.6517
.4	.6554	.6591	.6628	.6664	.6700	.6736	.6772	.6808	.6844	.6879
.5	.6915	.6950	.6985	.7019	.7054	.7088	.7123	.7157	.7190	.7224
.6	.7257	.7291	.7324	.7357	.7389	.7422	.7454	.7486	.7517	.7549
.7	.7580	.7611	.7642	.7673	.7703	.7734	.7764	.7794	.7823	.7852
.8	.7881	.7910	.7939	.7967	.7995	.8023	.8051	.8078	.8106	.8133
.9	.8159	.8186	.8212	.8238	.8264	.8289	.8315	.8340	.8365	.8389
1.0	.8413	.8438	.8461	.8485	.8508	.8531	.8554	.8577	.8599	.8621
1.1	.8643	.8665	.8686	.8708	.8729	.8749	.8770	.8790	.8810	.8830
1.2	.8849	.8869	.8888	.8907	.8925	.8944	.8962	.8980	.8997	.9147
1.3	.90320	.90490	.90658	.90824	.90988	.91149	.91309	.91466	.91621	.91774
1.4	.91924	.92073	.92220	.92364	.92507	.92647	.92785	.92922	.93056	.93189
1.5	.93319	.93448	.93574	.93699	.93822	.93943	.94062	.94179	.94295	.94408
1.6	.94520	.94630	.94738	.94845	.94950	.95053	.95154	.95254	.95352	.95449
1.7	.95543	.95637	.95728	.95818	.95907	.95994	.96080	.96164	.96246	.96327
1.8	.96407	.96485	.96562	.96638	.96712	.96784	.96856	.96926	.96995	.97062
1.9	.97128	.97193	.97257	.97320	.97381	.97441	.97500	.97558	.97615	.97670
2.0	.97725	.97778	.97831	.97882	.97932	.97982	.98030	.98077	.98124	.98169
2.1	.98214	.98257	.98300	.98341	.98382	.98422	.98461	.98500	.98537	.98574
2.2	.98610	.98645	.98679	.98713	.98745	.98778	.98809	.98840	.98870	.98899
2.3	.98928	.98956	.98983	$9^{1}0097$	$9^{1}0358$	$9^{1}0613$	$9^{1}0863$	$9^{1}1106$	$9^{1}1341$	$9^{1}1576$
2.4	$9^{1}1802$	$9^{1}2024$	$9^{1}2240$	$9^{1}2451$	$9^{1}2656$	$9^{1}2857$	$9^{1}3053$	$9^{1}3244$	$9^{1}3431$	$9^{1}3613$
2.5	$9^{1}3790$	$9^{1}3963$	$9^{1}4132$	$9^{1}4297$	$9^{1}4457$	$9^{1}4614$	$9^{1}4766$	$9^{1}4915$	$9^{1}5060$	$9^{1}5201$
2.6	$9^{1}5339$	$9^{1}5473$	$9^{1}5604$	$9^{1}5731$	$9^{1}5855$	$9^{1}5975$	$9^{1}6093$	$9^{1}6207$	$9^{1}6319$	$9^{1}6427$
2.7	$9^{1}6533$	$9^{1}6636$	$9^{1}6736$	$9^{1}6833$	$9^{1}6928$	$9^{1}7020$	$9^{1}7110$	$9^{1}7197$	$9^{1}7282$	$9^{1}7365$
2.8	$9^{1}7445$	$9^{1}7523$	$9^{1}7599$	$9^{1}7673$	$9^{1}7744$	$9^{1}7814$	$9^{1}7882$	$9^{1}7948$	$9^{1}8012$	$9^{1}8074$
2.9	$9^{1}8134$	$9^{1}8193$	$9^{1}8250$	$9^{1}8305$	$9^{1}8359$	$9^{1}8411$	$9^{1}8462$	$9^{1}8511$	$9^{1}8559$	$9^{1}8605$
3.0	$9^{1}8650$	$9^{1}8694$	$9^{1}8736$	$9^{1}8777$	$9^{1}8817$	$9^{1}8856$	$9^{1}8893$	$9^{1}8930$	$9^{1}8965$	$9^{1}8999$
3.1	$9^{1}0324$	$9^{1}0646$	$9^{1}0957$	$9^{1}1260$	$9^{1}1553$	$9^{1}1836$	$9^{1}2112$	$9^{1}2378$	$9^{1}2636$	$9^{1}2886$
3.2	$9^{1}3129$	$9^{1}3363$	$9^{1}3590$	$9^{1}3810$	$9^{1}4024$	$9^{1}4230$	$9^{1}4429$	$9^{1}4623$	$9^{1}4810$	$9^{1}4991$
3.3	$9^{1}5166$	$9^{1}5335$	$9^{1}5499$	$9^{1}5658$	$9^{1}5811$	$9^{1}5959$	$9^{1}6103$	$9^{1}6242$	$9^{1}6376$	$9^{1}6505$
3.4	$9^{1}6631$	$9^{1}6752$	$9^{1}6869$	$9^{1}6982$	$9^{1}7091$	$9^{1}7197$	$9^{1}7299$	$9^{1}7398$	$9^{1}7493$	$9^{1}7585$
3.5	$9^{1}7674$	$9^{1}7759$	$9^{1}7842$	$9^{1}7922$	$9^{1}7999$	$9^{1}8074$	$9^{1}8146$	$9^{1}8215$	$9^{1}8282$	$9^{1}8347$
3.6	$9^{1}8409$	$9^{1}8469$	$9^{1}8527$	$9^{1}8583$	$9^{1}8637$	$9^{1}8689$	$9^{1}8739$	$9^{1}8787$	$9^{1}8834$	$9^{1}8879$
3.7	$9^{1}8922$	$9^{1}8964$	$9^{1}9004$	$9^{1}9043$	$9^{1}9080$	$9^{1}9116$	$9^{1}9150$	$9^{1}9184$	$9^{1}9216$	$9^{1}9247$
3.8	$9^{1}7765$	$9^{1}3052$	$9^{1}3327$	$9^{1}3593$	$9^{1}3848$	$9^{1}4094$	$9^{1}4331$	$9^{1}4558$	$9^{1}4777$	$9^{1}4988$
3.9	$9^{1}5190$	$9^{1}5385$	$9^{1}5573$	$9^{1}5753$	$9^{1}5926$	$9^{1}6092$	$9^{1}6253$	$9^{1}6406$	$9^{1}6554$	$9^{1}6696$
4.0	$9^{1}6833$	$9^{1}6964$	$9^{1}7090$	$9^{1}7211$	$9^{1}7327$	$9^{1}7439$	$9^{1}7546$	$9^{1}7649$	$9^{1}7748$	$9^{1}7843$
4.1	$9^{1}7934$	$9^{1}8022$	$9^{1}8106$	$9^{1}8186$	$9^{1}8263$	$9^{1}8338$	$9^{1}8409$	$9^{1}8477$	$9^{1}8542$	$9^{1}8605$
4.2	$9^{1}8665$	$9^{1}8723$	$9^{1}8778$	$9^{1}8832$	$9^{1}8882$	$9^{1}8931$	$9^{1}8978$	$9^{1}9022$	$9^{1}9065$	$9^{1}9106$
4.3	$9^{1}1460$	$9^{1}1837$	$9^{1}2193$	$9^{1}2545$	$9^{1}2876$	$9^{1}3203$	$9^{1}3497$	$9^{1}3788$	$9^{1}4066$	$9^{1}4332$
4.4	$9^{1}4587$	$9^{1}4831$	$9^{1}5065$	$9^{1}5288$	$9^{1}5502$	$9^{1}5706$	$9^{1}5902$	$9^{1}6089$	$9^{1}6268$	$9^{1}6439$
4.5	$9^{1}6602$	$9^{1}6759$	$9^{1}6908$	$9^{1}7051$	$9^{1}7187$	$9^{1}7318$	$9^{1}7442$	$9^{1}7561$	$9^{1}7675$	$9^{1}7784$
4.6	$9^{1}7888$	$9^{1}7987$	$9^{1}8081$	$9^{1}8172$	$9^{1}8258$	$9^{1}8340$	$9^{1}8419$	$9^{1}8494$	$9^{1}8566$	$9^{1}8634$
4.7	$9^{1}8699$	$9^{1}8761$	$9^{1}8821$	$9^{1}8877$	$9^{1}8931$	$9^{1}8983$	$9^{1}0320$	$9^{1}0789$	$9^{1}1235$	$9^{1}1661$
4.8	$9^{2}2067$	$9^{2}2453$	$9^{2}2822$	$9^{2}3173$	$9^{2}3508$	$9^{2}3827$	$9^{2}4131$	$9^{2}4420$	$9^{2}4696$	$9^{2}4958$
4.9	$9^{2}5208$	$9^{2}5446$	$9^{2}5673$	$9^{2}5889$	$9^{2}6094$	$9^{2}6289$	$9^{2}6475$	$9^{2}6652$	$9^{2}6821$	$9^{2}6981$

Example: $\Phi(3.57) = .9^{1}8215 = 0.9998215.$

* Abridged from Table II of *Statistical Tables and Formulas* by A. Hald, John Wiley & Sons, New York, 1952.

APPENDIX C

DISTRIBUTION OF CHARACTERISTICS OF RECRUITS IN 14 MAJOR RATINGS/GROUPS

(1973 cohort)

APPENDIX C

DISTRIBUTION OF CHARACTERISTICS OF RECRUITS IN 14 MAJOR RATINGS/GROUPS

(1973 cohort)

This appendix contains data on the percentages of 1973 recruits (in a given rating/group) with particular pre-service and service history characteristics. Substantial differences do appear across ratings/groups. For example, note that three quarters of all recruits in the sensor system groups were in MG2, while only a quarter of those in the Logistics group were so classified. Differences of that magnitude clearly reflect distinctions which the Navy believes it is important to maintain in assigning recruits to one rating or another. But the fundamental premise of this report is that some differences (and/or similarities) among rating/group recruit profiles may not be optimal for maximizing the overall survival rate. The precise assignments (depending on pre-service and early in-service characteristics) that would optimize survival will depend on the results of a formal assignment procedure.

TABLE C-1

DISTRIBUTION OF CHARACTERISTICS IN 14 RATINGS/GROUPS

Characteristic	BTs	MMs	EM/IC	EN	HT	ET/FT	SENSOR	RM/CT
PDEPS	5.0	5.9	4.8	5.7	5.7	8.0	5.8	5.6
RACE(=NONWHITE)	5.4	2.7	4.5	4.0	3.8	3.2	3.1	9.7
AGE17	36.4	19.3	15.6	20.9	25.8	15.2	15.8	22.1
AGE18	35.1	43.9	43.6	45.2	39.0	42.4	41.9	41.9
AGE19	17.4	20.0	23.1	21.3	22.3	20.5	20.4	20.8
AGE20P	10.1	16.8	17.8	12.5	13.1	21.9	21.9	15.2
EDLT11	22.0	6.0	2.2	5.0	11.1	0.5	2.7	6.0
ED11	19.5	4.6	3.9	6.3	9.8	1.4	2.9	8.1
ED12	57.2	78.1	82.9	84.2	75.8	82.6	80.0	76.4
EDGT12	1.3	11.3	10.9	4.4	3.3	5.1	14.5	9.7
MG1	1.0	16.5	11.9	3.5	1.8	19.7	15.4	5.0
MG2	30.1	62.9	64.8	56.6	42.0	73.5	75.4	44.8
MG3U	40.8	13.3	16.4	27.4	33.4	6.1	7.6	30.5
MG3L	20.0	5.1	5.6	9.8	15.7	0.6	1.4	16.0
MG4	8.1	2.2	1.3	2.7	7.1	0.1	0.2	3.6
D.E.P.	44.4	65.3	79.2	71.7	68.1	67.8	68.0	60.2
RTC1	42.0	30.6	28.0	39.1	37.3	30.3	19.5	32.0
RTC2	29.3	36.7	28.9	21.3	21.9	31.8	36.2	28.8
RTC3	28.7	32.7	43.1	39.6	40.8	38.9	44.3	39.2
SURFACE COMBATANTS	58.8	36.6	25.0	13.9	24.3	35.5	45.3	9.5
CARRIERS	15.9	16.4	15.6	4.8	14.1	6.1	3.5	6.7
SUBMARINES	-	9.4	13.6	0.8	-	15.2	26.7	3.3
REPAIR	4.8	13.6	14.3	17.6	26.5	5.9	0.2	2.8
SEA BASED AIR	-	-	0.0	0.0	-	-	0.2	0.2
LAND BASED AIR	-	-	0.0	0.2	-	-	0.3	0.5
AMPHIBIOUS	9.5	11.2	10.0	15.5	9.6	8.2	3.7	5.0
AUXILIARY/PATROL	10.8	10.2	12.1	12.3	12.0	6.3	0.7	4.9
SEABEES	-	-	0.0	0.5	-	-	0.1	0.1
OTHER	0.2	2.6	9.4	34.4	13.5	22.8	19.3	67.0
SHORE	1.5	8.0	15.2	34.7	23.0	23.3	19.2	65.7
SEA	79.6	80.1	70.0	44.9	59.9	62.6	64.2	26.0
TOURED SEA	18.9	11.9	14.8	20.4	17.1	14.1	16.6	8.3
RATING	100.0 (BT)	100.0 (MM)	70.5 (EM) 29.5 (IC)	100.0 (EN)	100.0 (HT)	66.6 (ET) 33.4 (FT)	15.6 (OT) 64.1 (ST) 20.3 (EW)	34.4 (CT) 65.6 (RM)

TABLE C-1 (CONT'D)

Characteristic	AvWeps	AvMs	ABASPR	DT/HMs	LOGs	ADMIN
PDEPS	8.9	6.2	6.7	8.1	4.5	7.9
RACE(=NONWHITE)	3.7	5.2	5.1	14.1	11.1	9.9
AGE17	15.9	26.2	33.0	15.7	25.3	15.3
AGE18	37.7	39.2	36.3	37.8	40.4	32.2
AGE19	22.0	21.1	17.9	22.6	18.3	21.2
AGE20P	24.4	13.5	12.9	23.9	16.1	31.3
EDLT11	2.2	9.2	18.8	4.1	11.3	3.4
ED11	4.8	11.4	17.0	6.5	12.7	10.6
ED12	76.2	75.1	61.5	71.3	69.0	65.8
EDGT12	16.8	4.3	2.8	18.1	6.9	23.6
MG1	12.9	2.5	1.5	3.5	1.0	4.0
MG2	73.8	48.5	36.1	37.7	26.0	52.1
MG3U	11.2	33.5	33.9	29.0	32.3	27.7
MG3L	1.9	11.9	21.1	20.8	25.6	12.3
MG4	0.2	3.7	7.5	8.9	15.1	3.9
D.E.P.	67.9	53.1	49.3	76.5	65.7	70.3
RTC1	21.8	26.4	44.8	37.7	39.7	27.3
RTC2	49.8	32.2	34.7	18.9	23.1	39.6
RTC3	28.4	41.4	20.5	43.4	37.2	33.1
SURFACE COMBATANTS	0.3	-	0.3	1.0	21.6	12.3
CARRIERS	4.7	4.7	45.8	2.7	10.4	9.9
SUBMARINES	0.1	-	0.3	0.1	6.6	3.4
REPAIR	-	-	0.1	3.5	7.3	4.3
SEA BASED AIR	43.8	53.5	10.3	1.7	6.5	14.3
LAND BASED AIR	29.6	27.1	9.9	0.1	3.0	8.9
AMPHIBIOUS	0.7	0.4	1.3	0.9	8.8	6.5
AUXILIARY/PATROL	-	-	0.3	0.5	11.3	5.2
SEABEES	-	0.4	0.1	0.3	1.7	1.1
OTHER	20.8	14.9	31.6	89.2	22.8	34.1
SHORE	53.4	46.5	41.6	87.5	26.0	39.6
SEA	9.7	48.0	52.5	10.1	61.4	48.2
TOURED SEA	36.9	5.5	5.9	2.4	12.6	12.2
RATING	7.3(AX)	20.3(AE)	18.6(PR)	18.5(DT)	10.8(AK)	2.4(PC)
	16.5(AW)	29.2(AD)	63.3(AB)	81.5(HM)	8.5(DK)	18.7(YN)
	16.2(AG)	14.6(AO)	18.1(AS)		1.4(SH)	9.6(AZ)
	11.1(AC)	35.9(AM)			25.7(SK)	12.0(AG)
	48.9(AT)				53.5(MS)	57.3(PN)

APPENDIX D

DETAILED PROBIT ESTIMATES OF FOUR-YEAR SURVIVAL RATES IN 14 MAJOR RATINGS/GROUPS

(1973 cohort)

APPENDIX D

DETAILED PROBIT ESTIMATES OF FOUR-YEAR SURVIVAL RATES IN 14 MAJOR RATINGS/GROUPS

(1973 cohort)

NOTE: The intercept probability in each of these tables indicates the four-year average survival chance of a recruit with an "intercept-type" profile. The survival probability changes for each other characteristic show the effects of substituting that characteristic in the intercept, others held constant. A t-value greater than 1.64 indicates an effect significant at least at the .10 level.

TABLE D-1

PROBIT ESTIMATES OF FOUR-YEAR SURVIVAL PROBABILITY FOR BOILER TECHNICIANS

Characteristic	Probit coefficient	|t-value|	Probability	Change in probability
Intercept	-.143	1.44	.557	--
PDEPS	.373	2.54	.409	-.148
RACE	.070	.50	.529	-.028
AGE17	.088	1.12	.522	-.035
AGE18*				
AGE19	-.224	2.46	.643	.086
AGE20P	-.253	2.17	.654	.097
EDLT11	.350	3.88	.418	-.139
ED11	.310	3.59	.434	-.123
ED12*				
EDGT12	-.486	1.49	.735	.179
MG1&2*				
MG3U	.129	1.76	.505	-.051
MG3L4	.057	.70	.534	-.023
D.E.P.	-.132	1.94	.608	.051
RTC1	.002	.03	.556	-.001
RTC2	.023	.28	.548	-.009
RTC3*				
SURFACE COMBATANTS*				
CARRIERS	-.153	1.74	.616	.059
SUBMARINES	N.A.	--	--	--
REPAIR	-.006	.03	.559	.002
SEA-BASED AIR	N.A.	--	--	--
LAND-BASED AIR	N.A.	--	--	--
AMPHIBIOUS	-.029	.26	.568	.011
AUXILIARY PATROL	-.073	.72	.586	.029
OTHER	N.A.	--	--	--
SHORE	.134	.43	.504	-.053
SEA*				
TOURED SEA	-.154	1.90	.617	.060
RATINGS:				
BT				

* intercept characteristic.
N.A. numbers of recruits in this category too small to estimate (see appendix C).

TABLE D-2a

PROBIT ESTIMATES OF FOUR-YEAR SURVIVAL PROBABILITY FOR MACHINISTS MATES

Characteristic	Probit coefficient	|t-value|	Probability	Change in probability
Intercept	-.179	2.16	.571	--
6YO ENTRY	-.157	2.40	.632	.061
PDEPS	.015	.14	.565	-.006
RACE	-.062	.40	.595	.024
AGE17	.141	1.99	.515	-.056
AGE18*				
AGE19	.045	.64	.553	-.018
AGE20P	.000	.00	.571	.000
EDLT11	.100	1.06	.531	-.040
ED11	.100	1.06	.531	-.040
ED12*				
EDGT12	-.140	1.46	.625	.054
MG1&2*				
MG3U	.078	.94	.540	-.031
MG3L4	-.140	1.30	.625	.054
D.E.P.	-.210	3.67	.651	.080
RTC1	.038	.60	.556	-.015
RTC2	.036	.59	.557	-.014
RTC3*				
SURFACE COMBATANTS*				
CARRIERS	-.019	.25	.578	.007
SUBMARINES	-.346	3.57	.700	.129
REPAIR	-.122	1.05	.618	.047
SEA-BASED AIR	N.A.	--	--	--
LAND-BASED AIR	N.A.	--	--	--
AMPHIBIOUS	.225	2.68	.482	-.089
AUXILIARY PATROL	.074	.86	.542	-.029
OTHER	N.A.	--	--	--
SHORE	.114	.80	.526	-.045
SEA*				
TOURED SEA	-.081	.99	.603	.031
RATINGS:				
MM				

* intercept characteristic.
N.A. numbers of recruits in this category too small to estimate (see appendix C).

TABLE D-2b

PROBIT ESTIMATES OF FOUR-YEAR SURVIVAL PROBABILITY FOR MACHINISTS MATES

Characteristic	Probit coefficient	|t-value|	Probability	Change in probability
Intercept	-.261	3.47	.603	--
PDEPS	.016	.15	.597	-.006
RACE	-.072	.46	.630	.027
AGE17	.138	1.95	.549	-.054
AGE18*				
AGE19	.047	.68	.585	-.018
AGE20P	.004	.05	.601	-.002
EDLT11	.131	1.42	.552	-.051
ED12*				
EDGT12	-.170	1.79	.667	.064
MG1&2*				
MG3U	.148	1.95	.545	-.058
MG3L4	-.080	.78	.633	.030
D.E.P.	-.222	3.94	.685	.083
RTC1	.041	.65	.587	-.016
RTC2	.013	.21	.598	-.005
RTC3*				
SURFACE COMBATANTS*				
CARRIERS	-.044	.59	.620	.017
SUBMARINES	-.359	3.72	.732	.129
REPAIR	-.132	1.14	.653	.050
SEA-BASED AIR	N.A.	--	--	--
LAND-BASED AIR	N.A.	--	--	--
AMPHIBIOUS	.216	2.59	.518	-.085
AUXILIARY PATROL	.071	.83	.575	-.028
OTHER	N.A.	--	--	--
SHORE	.085	.60	.570	-.033
SEA*				
TOURED SEA	-.072	.90	.630	.028
RATINGS:				
MM				

* intercept characteristic.
N.A. numbers of recruits in this category too small to estimate (see appendix C).

TABLE D-3a

PROBIT ESTIMATES OF FOUR-YEAR SURVIVAL PROBABILITY
FOR ELECTRICIANS MATE/INTERIOR COMMUNICATION ELECTRICIAN

Characteristic	Probit coefficient	t-value	Probability	Change in probability
Intercept	-.430	3.83	.666	--
6YO ENTRY	-.275	3.67	.760	.093
PDEPS	.166	1.18	.604	-.062
RACE	-.154	1.03	.720	.054
AGE17	.027	.30	.657	-.001
AGE18*				
AGE19	.080	1.06	.637	-.030
AGE20P	-.009	.10	.670	.003
EDLT11	.354	1.45	.530	-.136
ED11	-.024	.15	.675	.009
ED12*				
EDGT12	.094	.87	.631	-.035
MG1&2*				
MG3U	-.106	1.26	.704	.038
MG3L4	-.161	1.30	.723	.056
D.E.P.	-.060	.79	.688	.021
RTC1	.104	1.40	.623	-.039
RTC2	.122	1.70	.621	-.046
RTC3*				
SURFACE COMBATANTS*				
CARRIERS	-.047	.52	.683	.017
SUBMARINES	-.332	3.11	.777	.111
REPAIR	-.028	.28	.676	.010
SEA-BASED AIR	N.A.	--	--	--
LAND-BASED AIR	N.A.	--	--	--
AMPHIBIOUS	.025	.24	.657	-.009
AUXILIARY PATROL	.020	.21	.659	-.007
OTHER*				
SHORE	-.091	.84	.699	.032
SEA*				
TOURED SEA	.021	.24	.659	-.008
RATINGS:				
IC	.014	.21	.661	-.005
EM*				

* intercept characteristic.
N.A. numbers of recruits in this category too small to estimate (see appendix C).

TABLE D-3b

PROBIT ESTIMATES OF FOUR-YEAR SURVIVAL PROBABILITY
FOR ELECTRICIANS MATE/INTERIOR COMMUNICATION ELECTRICIAN

Characteristic	Probit coefficient	|t-value|	Probability	Change in probability
Intercept	-.614	6.06	.730	--
PDEPS	.140	1.01	.682	-.05
RACE	-.153	1.03	.779	.05
AGE17	.038	0.43	.718	-.01
AGE18*				
AGE19	.088	1.16	.701	-.03
AGE20P	.010	0.10	.727	-.00
EDLT11	.345	1.44	.606	-.12
ED11	.020	0.13	.724	-.01
ED12*				
EDGT12	.055	0.52	.712	-.02
MG1&2*				
MG3U	-.017	0.22	.736	.01
MG3L4	-.062	0.52	.751	.02
D.E.P.	-.018	0.24	.736	.01
RTC1	.144	1.97	.681	-.05
RTC2	.118	1.65	.690	-.04
RTC3*				
SURFACE COMBATANTS*				
CARRIERS	-.056	0.62	.749	.02
SUBMARINES	-.447	4.39	.856	.13
REPAIR	-.017	0.17	.736	.01
SEA-BASED AIR	N.A.	--	--	--
LAND-BASED AIR	N.A.	--	--	--
AMPHIBIOUS	.022	0.21	.723	-.01
AUXILIARY PATROL	.030	0.31	.721	-.01
OTHER*				
SHORE	-.102	0.95	.763	.03
SEA*				
TOURED SEA	.055	0.63	.712	-.02
RATINGS:				
IC	.068	1.03	.707	-.02
EM*				

* intercept characteristic.
N.A. numbers of recruits in this category too small to estimate (see appendix C).

TABLE D-4

PROBIT ESTIMATES OF FOUR-YEAR SURVIVAL PROBABILITY FOR ENGINEMEN

Characteristic	Probit coefficient	|t-value|	Probability	Change in probability
Intercept	-.148	1.17	.559	--
PDEPS	.071	0.39	.531	-.03
RACE	.010	0.05	.555	-.00
AGE17	.119	1.06	.512	-.05
AGE18*				
AGE19	.015	0.14	.553	-.01
AGE20P	-.153	1.08	.618	.06
EDLT11	-.247	1.72	.654	.09
ED11	-.247	1.72	.654	.09
ED12*				
EDGT12	.064	0.31	.534	-.03
MG1&2*				
MG3U	.074	0.78	.530	-.03
MG3L4	.180	1.38	.488	-.07
D.E.P.	-.325	3.39	.682	.12
RTC1	.168	1.82	.492	-.07
RTC2	.000	0.00	.559	.00
RTC3*				
SURFACE COMBATANTS	.176	0.98	.489	-.07
CARRIERS	.013	0.05	.554	-.00
SUBMARINES	N.A.	--	--	--
REPAIR	.077	0.49	.528	-.03
SEA-BASED AIR	N.A.	--	--	--
LAND-BASED AIR	N.A.	--	--	--
AMPHIBIOUS	.314	1.74	.434	-.12
AUXILIARY PATROL	.156	0.89	.497	-.06
OTHER*				
SHORE*				
SEA	-.240	1.56	.651	.09
TOURED SEA	-.349	2.11	.691	.13
RATINGS:				
EN				

* intercept characteristic.
N.A. numbers of recruits in this category too small to estimate (see appendix C).

TABLE D-5

PROBIT ESTIMATES OF FOUR-YEAR SURVIVAL PROBABILITY FOR HULL TECHNICIANS

Characteristic	Probit coefficient	|t-value|	Probability	Change in probability
Intercept	-.587	3.77	.721	--
PDEPS	.212	1.36	.646	-.07
RACE	-.104	0.55	.755	.03
AGE17	.054	0.57	.703	-.02
AGE18*				
AGE19	-.025	0.27	.730	.01
AGE20P	-.145	1.24	.768	.05
EDLT11	.233	1.83	.639	-.08
ED11	.535	4.29	.521	-.20
ED12*				
EDGT12	N.A.	--	--	--
MG1&2*				
MG3U	.018	0.23	.715	-.01
MG3L	.046	0.44	.706	-.02
MG4	-.228	1.52	.793	.07
D.E.P.	-.081	1.01	.748	.03
RTC1	.112	1.37	.683	-.04
RTC2	.177	1.86	.659	-.06
RTC3*				
SURFACE COMBATANTS	.280	1.66	.621	-.10
CARRIERS	.235	1.31	.638	-.08
SUBMARINES	N.A.	--	--	--
REPAIR	.243	1.63	.635	-.08
SEA-BASED AIR	N.A.	--	--	--
LAND-BASED AIR	N.A.	--	--	--
AMPHIBIOUS	.302	1.59	.612	-.11
AUXILIARY PATROL	.280	1.62	.621	-.10
OTHER*				
SHORE*				
SEA	.045	0.37	.706	-.02
TOURED SEA	-.167	1.27	.775	.05
RATINGS:				
HT				

* intercept characteristic.
N.A. numbers of recruits in this category too small to estimate (see appendix C).

TABLE D-6a

PROBIT ESTIMATES OF FOUR-YEAR SURVIVAL PROBABILITY FOR WEAPONS CONTROL

Characteristic	Probit coefficient	|t-value|	Probability	Change in probability
Intercept	-.769	3.85	.779	--
6YO ENTRY	-.160	2.09	.824	.044
PDEPS	-.099	.81	.807	.028
RACE	-.033	.18	.789	.010
AGE17	.018	.20	.774	-.005
AGE18*				
AGE19	-.016	.19	.784	.005
AGE20P	-.008	.08	.781	.002
EDLT11	1.24	2.40	.319	-.460
ED11	.046	.18	.765	-.014
ED12*				
EDGT12	-.087	.84	.804	.025
MG1&2*				
MG3U	.052	0.43	.763	-.016
MG3L4	.052	0.43	.763	-.016
D.E.P.	-.155	2.35	.822	.043
RTC1	.119	1.55	.742	-.037
RTC2	.279	3.79	.688	-.091
RTC3*				
SURFACE COMBATANTS	.293	1.58	.683	-.096
CARRIERS	.238	1.12	.703	-.077
SUBMARINES	.167	.88	.726	-.053
REPAIR	.221	1.32	.708	-.071
SEA-BASED AIR	N.A.	--	--	--
LAND-BASED AIR	N.A.	--	--	--
AMPHIBIOUS	.211	1.03	.712	-.067
AUXILIARY PATROL	.363	1.73	.658	-.121
OTHER*				
SHORE	.024	.13	.772	-.007
SEA*				
TOURED SEA	-.139	1.49	.818	.039
RATINGS:				
FT	-.120	1.61	.813	.034
ET*				

* intercept characteristic.
N.A. numbers of recruits in this category too small to estimate (see appendix C).

TABLE D-6b

PROBIT ESTIMATES OF FOUR-YEAR SURVIVAL PROBABILITY FOR WEAPONS CONTROL

Characteristic	Probit coefficient	|t-value|	Probability	Change in probability
Intercept	-.859	4.56	.805	--
PDEPS	-.099	0.83	.831	.026
RACE	-.040	0.22	.815	.011
AGE17	.037	0.42	.795	-.010
AGE18*				
AGE19	-.012	0.14	.808	.003
AGE20P	.005	0.06	.803	-.001
EDLT11	N.A.	--	--	--
ED11	N.A.	--	--	--
ED12*				
EDGT12	-.095	0.93	.830	.025
MG1&2*				
MG3U	.095	0.80	.778	-.027
MG3L4	.095	0.80	.778	-.027
D.E.P.	-.181	2.78	.851	.046
RTC1	.118	1.54	.771	-.034
RTC2	.286	3.89	.717	-.088
RTC3*				
SURFACE COMBATANTS	.275	1.49	.721	-.084
CARRIERS	.216	1.03	.740	-.065
SUBMARINES	.115	0.61	.772	-.033
REPAIR	.185	1.11	.750	-.055
SEA-BASED AIR	N.A.	--	--	--
LAND-BASED AIR	N.A.	--	--	--
AMPHIBIOUS	.182	0.89	.751	-.054
AUXILIARY PATROL	.329	1.58	.702	-.103
OTHER*				
SHORE	.042	0.24	.793	-.012
SEA*				
TOURED SEA	-.132	1.42	.839	.034
RATINGS:				
FT	-.114	1.53	.835	.029
ET*				

* intercept characteristic.
N.A. numbers of recruits in this category too small to estimate (see appendix C).

TABLE D-7a

PROBIT ESTIMATES OF FOUR-YEAR SURVIVAL PROBABILITY FOR SENSORS

Characteristic	Probit coefficient	|t-value|	Probability	Change in probability
Intercept	-.954	3.03	.830	--
6YO ENTRY	-.183	1.66	.872	.042
PDEPS	-.192	.94	.874	.044
RACE	-.166	.63	.869	.039
AGE17	.165	1.25	.785	-.045
AGE18*				
AGE19	.110	.90	.801	-.029
AGE20P	.083	.58	.808	-.022
EDLT11	-.205	.96	.877	.047
ED11	-.205	.96	.877	.047
ED12*				
EDGT12	-.208	1.33	.877	.047
MG1&2*				
MG3U	-.045	.29	.841	.011
MG3L4	-.045	.29	.841	.011
D.E.P.	-.364	3.69	.906	.076
RTC1	.278	2.20	.750	-.080
RTC2	.212	2.05	.771	-.059
RTC3*				
SURFACE COMBATANTS+REP	.949	1.32	.502	-.328
CARRIERS+SBA	.939	1.25	.506	-.324
SUBMARINES	.986	1.37	.487	-.343
REPAIR	N.A.	--	--	--
SEA-BASED AIR	N.A.	--	--	--
LAND-BASED AIR	N.A.	--	--	--
AMPHIBIOUS	.618	.82	.632	-.198
AUXILIARY PATROL	.618	.82	.632	-.198
OTHER*				
SHORE*				
SEA	-.526	.74	.931	.101
TOURED SEA	-.520	.72	.930	.010
RATINGS: EW	.183	1.29	.780	-.050
OT	.454	1.63	.691	-.139
ST*				

* intercept characteristic.
N.A. numbers of recruits in this category too small to estimate (see appendix C).

TABLE D-7b

PROBIT ESTIMATES OF FOUR-YEAR SURVIVAL PROBABILITY FOR SENSORS

Characteristic	Probit coefficient	|t-value|	Probability	Change in probability
Intercept	-1.015	3.238	.845	--
PDEPS	-.217	1.064	.891	.046
RACE	-.136	.526	.875	.030
AGE17	.160	1.218	.804	-.041
AGE18*				
AGE19	.120	.985	.815	-.03
AGE20P	.089	.631	.823	-.022
EDLT11	-.097	.482	.867	.022
ED11	-.097	.482	.867	.022
ED12*				
EDGT12	-.201	1.289	.888	.043
MG1&2*				
MG3U	-.044	.286	.855	.010
MG3L4	-.044	.286	.855	.010
D.E.P.	-.363	3.679	.916	.071
RTC1	.291	2.304	.766	-.079
RTC2	.216	2.100	.788	-.057
RTC3*				
SURFACE COMBATANTS+REP	.917	1.248	.539	-.306
CARRIERS+SBA	.968	1.259	.519	-.326
SUBMARINES	.945	1.280	.528	-.317
REPAIR	N.A.	--	--	--
SEA-BASED AIR	N.A.	--	--	--
LAND-BASED AIR	N.A.	--	--	--
AMPHIBIOUS	.637	.825	.647	-.198
AUXILIARY PATROL	N.A.	--	--	--
OTHER*				
SHORE*				
SEA	-.556	.765	.942	.097
TOURED SEA	-.551	.750	.942	.097
RATINGS: EW	.156	1.108	.805	-.040
OT	.509	1.830	.694	-.151
ST*				

* intercept characteristic.
N.A. numbers of recruits in this category too small to estimate (see appendix C).

TABLE D-8a

PROBIT ESTIMATES OF FOUR-YEAR SURVIVAL PROBABILITY FOR RADIOMEN/COMMUNICATION TECHNICIANS

Characteristic	Probit coefficient	|t-value|	Probability	Change in probability
Intercept	-.524	5.25	.700	--
6YO ENTRY	-.578	4.19	.865	.165
PDEPS	-.048	.31	.716	.016
RACE	-.046	.37	.716	.016
AGE17	.026	.27	.691	-.009
AGE18*				
AGE19	-.022	.24	.707	.007
AGE20P	-.080	.67	.727	.027
EDLT11	.227	1.45	.617	-.083
ED11	.181	1.46	.634	-.066
ED12	.369	1.49	.561	-.138
EDGT12	-.037	.27	.713	.013
MG1&2*				
MG3U	.081	1.01	.671	-.029
MG3L4	.050	.50	.682	-.018
D.E.P.	-.084	1.18	.728	.028
RTC1	.025	.31	.691	-.009
RTC2	.094	1.13	.666	-.034
RTC3*				
SURFACE COMBATANTS	.306	1.42	.586	-.114
CARRIERS	-.024	.10	.708	.008
SUBMARINES	.122	.47	.656	-.044
REPAIR	.204	.85	.626	-.074
SEA-BASED AIR	N.A.	--	--	--
LAND-BASED AIR	N.A.	--	--	--
AMPHIBIOUS	.369	1.49	.561	-.138
AUXILIARY PATROL	.244	1.03	.610	-.090
OTHER*				
SHORE*				
SEA	.011	5.28	.696	-.004
TOURED SEA	-.124	.64	.741	.041
RATINGS:				
CT	-.043	.49	.715	.015
RM*				

* intercept characteristic.

N.A. numbers of recruits in this category too small to estimate (see appendix C).

TABLE D-8b

PROBIT ESTIMATES OF FOUR-YEAR SURVIVAL
PROBABILITY FOR RADIOMEN/COMMUNICATION TECHNICIANS

Characteristic	Probit coefficient	|t-value|	Probability	Change in probability
Intercept	-.547	5.51	.708	--
PDEPS	-.011	0.07	.712	.00
RACE	-.086	0.71	.737	.03
AGE17	.043	0.47	.693	-.02
AGE18*				
AGE19	-.022	0.25	.715	.01
AGE20P	-.090	0.76	.738	.03
EDLT11	.232	1.50	.624	-.08
ED11	.175	1.44	.645	-.06
ED12*				
EDGT12	-.019	0.14	.715	.01
MG1&2*				
MG3U	-.134	1.71	.660	-.05
MG3L4	.073	0.74	.682	-.03
D.E.P.	-.085	1.21	.736	.03
RTC1	-.003	0.03	.709	.00
RTC2	.069	0.84	.684	.02
RTC3*				
SURFACE COMBATANTS	.339	1.60	.582	-.13
CARRIERS	.021	0.09	.701	-.01
SUBMARINES	.132	0.51	.661	-.05
REPAIR	.253	1.07	.616	-.09
SEA-BASED AIR	N.A.	--	--	--
LAND-BASED AIR	N.A.	--	--	--
AMPHIBIOUS	.411	1.69	.554	-.15
AUXILIARY PATROL	.279	1.19	.606	-.10
OTHER*				
SHORE*				
SEA	-.054	0.27	.726	.02
TOURED SEA	-.159	0.84	.760	.05
RATINGS:				
CT	.163	1.95	.761	.05
RM*				

* intercept characteristic.
N.A. numbers of recruits in this category too small to estimate (see appendix C).

TABLE D-9a

PROBIT ESTIMATES OF FOUR-YEAR SURVIVAL PROBABILITY FOR AVIATION WEAPONS

Characteristic	Probit coefficient	|t-value|	Probability	Change in probability
Intercept	-.716	6.41	.763	--
6YO ENTRY	-.240	3.02	.831	.067
PDEPS	-.076	.64	.786	.023
RACE	.092	.55	.734	-.029
AGE17	.010	1.02	.731	-.032
AGE18*				
AGE19	-.031	.36	.773	.010
AGE20P	-.047	.48	.777	.014
EDLT11	.036	.28	.752	-.011
ED12*				
EDGT12	-.117	1.16	.798	.034
MG1&2*				
MG3U	-.034	.34	.774	.010
MG3L4	-.057	.27	.780	.017
D.E.P.	-.287	4.18	.842	.079
RTC1	.336	3.76	.648	-.115
RTC2	.266	3.44	.674	-.089
RTC3*				
SURFACE COMBATANTS	N.A.	--	--	--
CARRIERS	.009	.06	.760	-.003
SUBMARINES	N.A.	--	--	--
REPAIR	N.A.	--	--	--
SEA-BASED AIR*				
LAND-BASED AIR	.060	.76	.744	-.019
AMPHIBIOUS	N.A.	--	--	--
AUXILIARY PATROL	N.A.	--	--	--
OTHER	-.218	.76	.825	.062
SHORE*				
SEA	-.018	.23	.769	.005
TOURED SEA	-.388	2.99	.865	.102
RATINGS: AX	.022	.18	.756	-.007
AW	.159	1.59	.711	-.052
AQ	-.044	.47	.777	.014
AC	.134	1.15	.720	-.043
AT*				

* intercept characteristic.
N.A. numbers of recruits in this category too small to estimate (see appendix C).

TABLE D-9b

PROBIT ESTIMATES OF FOUR-YEAR SURVIVAL PROBABILITY FOR AVIATION WEAPONS

Characteristic	Probit coefficient	|t-value|	Probability	Change in probability
Intercept	-.767	7.05	.779	--
PDEPS	-.095	0.81	.806	.027
RACE	.089	0.54	.751	-.027
AGE17	.103	1.07	.746	-.032
AGE18*				
AGE19	-.017	0.21	.784	.005
AGE20P	-.043	0.44	.791	.013
EDLT11	.085	0.66	.753	-.026
ED11	.085	0.66	.753	-.026
ED12*				
EDGT12	-.107	1.07	.809	.031
MG1&2*				
MG3U	-.034	0.34	.788	.010
MG3L4	-.030	0.14	.787	.009
D.E.P.	-.286	4.19	.854	.075
RTC1	.343	3.85	.664	-.114
RTC2	.230	3.02	.704	-.074
RTC3*				
SURFACE COMBATANTS	N.A.	--	--	--
CARRIERS	.029	0.19	.770	-.009
SUBMARINES	N.A.	--	--	--
REPAIR	N.A.	--	--	--
SEA-BASED AIR*				
LAND-BASED AIR	.078	0.98	.754	-.024
AMPHIBIOUS	N.A.	--	--	--
AUXILIARY PATROL	N.A.	--	--	--
OTHER	-.200	0.70	.833	.055
SHORE*				
SEA	-.053	0.71	.794	.016
TOURED SEA	-.432	3.37	.885	.106
RATINGS: AX	-.007	0.06	.781	.002
AW	.202	2.11	.714	-.065
AQ	-.089	0.95	.804	.026
AC	.125	1.10	.740	-.039
AT*				

* intercept characteristic.
N.A. numbers of recruits in this category too small to estimate (see appendix C).

TABLE D-10

PROBIT ESTIMATES OF FOUR-YEAR SURVIVAL PROBABILITY FOR AVIATION MAINTENANCE

Characteristic	Probit coefficient	|t-value|	Probability	Change in probability
Intercept	-.619	6.71	.732	--
PDEPS	.049	0.52	.715	-.016
RACE	.200	1.94	.662	-.069
AGE17	.160	2.68	.677	-.055
AGE18*				
AGE19	-.087	1.41	.760	.028
AGE20P	-.011	0.14	.735	.004
EDLT11	.199	2.32	.663	-.069
ED11	.180	2.46	.670	-.062
ED12*				
EDGT12	-.265	2.05	.812	.079
MG1&2*				
MG3U	-.094	1.86	.762	.030
MG3L4	-.159	2.33	.782	.049
D.E.P.	-.158	3.30	.781	.049
RTC1	.119	2.10	.691	-.041
RTC2	.109	2.03	.695	-.037
RTC3*				
SURFACE COMBATANTS	N.A.	--	--	--
CARRIERS	.304	2.30	.624	-.108
SUBMARINES	N.A.	--	--	--
REPAIR	N.A.	--	--	--
SEA-BASED AIR	.146	1.84	.682	-.050
LAND-BASED AIR	.056	0.72	.713	-.019
AMPHIBIOUS	N.A.	--	--	--
AUXILIARY PATROL	N.A.	--	--	--
OTHER*				
SHORE*				
SEA	.036	0.64	.720	-.012
TOURED SEA	-.137	1.30	.775	.043
RATINGS: AE	-.164	2.53	.783	.051
AD	.142	2.50	.683	-.048
AO	.040	0.54	.718	-.013
AM*				

* intercept characteristic.
N.A. numbers of recruits in this category too small to estimate (see appendix C).

TABLE D-11

PROBIT ESTIMATES OF FOUR-YEAR SURVIVAL PROBABILITY FOR AVIATION SUPPORT

Characteristic	Probit coefficient	t-value	Probability	Change in probability
Intercept	-.247	1.67	.598	--
PDEPS	.377	2.24	.448	-.15
RACE	-.151	0.78	.655	.06
AGE17	.072	0.70	.570	-.03
AGE18*				
AGE19	-.114	0.99	.641	.04
AGE20P	-.139	1.01	.651	.05
EDLT11	.057	0.47	.575	-.02
ED11	.249	2.15	.500	-.10
ED12*				
EDGT12	-.052	0.21	.618	.02
MG1&2*				
MG3U	-.047	0.49	.616	.02
MG3L	.040	0.36	.582	-.02
MG4	-.186	1.08	.668	.07
D.E.P.	-.327	3.70	.717	.11
RTC1	.074	0.67	.569	-.03
RTC2	.002	0.02	.597	-.00
RTC3*				
SURFACE COMBATANTS	N.A.	--	--	--
CARRIERS	-.065	0.32	.623	.02
SUBMARINES	N.A.	--	--	--
REPAIR	N.A.	--	--	--
SEA-BASED AIR	-.066	0.29	.623	.03
LAND-BASED AIR	.009	0.05	.594	-.00
AMPHIBIOUS	N.A.	--	--	--
AUXILIARY PATROL	N.A.	--	--	--
OTHER*				
SHORE*				
SEA	.276	1.47	.489	-.11
TOURED SEA	.040	0.18	.582	-.02
RATINGS: AS	-.222	1.82	.681	.08
PR	-.045	0.27	.615	.02
AB*				

* intercept characteristic.
N.A. numbers of recruits in this category too small to estimate (see appendix C).

TABLE D-12

PROBIT ESTIMATES OF FOUR-YEAR SURVIVAL
PROBABILITY FOR DENTAL TECHNICIANS AND HOSPITALMEN

Characteristic	Probit coefficient	|t-value|	Probability	Change in probability
Intercept	-.786	7.92	.784	--
PDEPS	-.067	0.75	.803	.02
RACE	-.138	1.87	.822	.04
AGE17	.137	1.94	.742	-.04
AGE18*				
AGE19	.071	1.13	.763	-.02
AGE20P	-.005	0.07	.786	.00
EDIT11	.247	3.05	.705	-.08
ED11	.247	3.05	.705	-.08
ED12*				
EDGT12	-.031	0.42	.793	.01
MG1&2*				
MG3U	-.008	0.13	.786	.00
MG3L	.033	0.49	.774	-.01
MG4	-.055	0.58	.799	.02
D.E.P.	-.076	1.33	.806	.02
RTC1	.474	8.95	.623	-.16
RTC2	.312	4.89	.682	-.10
RTC3*				
SURFACE COMBATANTS	N.A.	--	--	--
CARRIERS	N.A.	--	--	--
SUBMARINES	N.A.	--	--	--
REPAIR	N.A.	--	--	--
SEA-BASED AIR	N.A.	--	--	--
LAND-BASED AIR	N.A.	--	--	--
AMPHIBIOUS	N.A.	--	--	--
AUXILIARY PATROL	N.A.	--	--	--
OTHER*				
SHORE	-.045	0.60	.796	.01
SEA*				
TOURED SEA*				
RATINGS: DT	.232	3.97	.710	-.07
HM*				

* intercept characteristic.
N.A. numbers of recruits in this category too small to estimate (see appendix C).

TABLE D-13

PROBIT ESTIMATES OF FOUR-YEAR SURVIVAL PROBABILITY FOR LOGISTICS

Characteristic	Probit coefficient	t-value	Probability	Change in probability
Intercept	-.213	1.63	.584	--
PDEPS	.192	1.56	.508	-.076
RACE	-.071	0.80	.612	.027
AGE17	.122	1.76	.536	-.048
AGE18*				
AGE19	-.202	2.75	.661	.077
AGE20P	-.170	1.96	.649	.065
EDLT11	.278	2.88	.474	-.110
ED11	.168	2.01	.518	-.066
ED12*				
EDGT12	-.021	0.17	.592	.008
MG1&2*				
MG3U	.008	.118	.581	-.003
MG3L	.079	1.05	.553	-.031
MG4	.021	0.23	.576	-.008
D.E.P.	-.203	3.41	.661	.077
RTC1	.122	2.02	.536	-.048
RTC2	.092	1.31	.547	-.036
RTC3*				
SURFACE COMBATANTS	.263	2.33	.479	-.104
CARRIERS	.108	0.87	.541	-.043
SUBMARINES	.008	0.06	.581	-.003
REPAIR	.164	1.35	.519	-.065
SEA-BASED AIR	-.065	0.48	.609	.025
LAND-BASED AIR	N.A.	--	--	--
AMPHIBIOUS	.231	1.76	.493	-.091
AUXILIARY PATROL	.200	1.62	.505	-.079
OTHER*				
SHORE	-.026	0.24	.594	.010
SEA*				
TOURED SEA	-.285	3.44	.691	.106
RATINGS: AK	-.079	0.82	.615	.031
DK	-.223	2.12	.669	.084
SH	-.393	1.78	.728	.143
SK	-.214	3.20	.665	.081
MS*				

* intercept characteristic.

N.A. numbers of recruits in this category too small to estimate (see appendix C).

TABLE D-14

PROBIT ESTIMATES OF FOUR-YEAR SURVIVAL PROBABILITY FOR ADMINISTRATION

Characteristic	Probit coefficient	t-value	Probability	Change in probability
Intercept	-.408	3.34	.658	--
PDEPS	-.092	0.69	.691	.03
RACE	.041	0.34	.643	-.02
AGE17	.073	0.67	.631	-.03
AGE18*				
AGE19	-.112	1.17	.698	.04
AGE20P	.010	0.09	.654	-.00
EDLT11	.096	0.78	.622	-.04
ED11	.096	0.78	.622	-.04
ED12*				
EDGT12	-.160	1.61	.715	.06
MG1&2*				
MG3U	-.096	1.19	.692	.03
MG3L4	-.196	1.86	.727	.07
D.E.P.	-.067	0.88	.683	.02
RTC1	.123	1.39	.612	-.05
RTC2	.081	1.00	.628	-.03
RTC3*				
SURFACE COMBATANTS	.233	1.54	.569	-.09
CARRIERS	.200	1.26	.582	-.08
SUBMARINES	.084	0.39	.626	-.03
REPAIR	.161	0.88	.598	-.06
SEA-BASED AIR*	.005	0.04	.656	-.00
LAND-BASED AIR	.016	0.11	.652	-.01
AMPHIBIOUS	.269	1.55	.555	-.10
AUXILIARY PATROL	.202	1.09	.582	-.08
OTHER*				
SHORE*				
SEA	.021	0.18	.650	-.01
TOURED SEA	-.172	1.20	.718	.06
RATINGS: PC	.061	0.28	.635	-.02
YN	.000	0.00	.658	.00
AZ	-.217	1.65	.734	.08
AG	-.285	2.38	.756	.10
PN*				

* intercept characteristic.
N.A. numbers of recruits in this category too small to estimate (see appendix C).

APPENDIX E

DISTRIBUTION OF CHARACTERISTICS OF FOUR-YEAR SURVIVORS IN 14 MAJOR RATINGS/GROUPS

(1973 COHORT)

TABLE E-1

DISTRIBUTION OF CHARACTERISTICS OF FOUR-YEAR SURVIVORS
(1973 cohort)

Characteristic	BTs	MMs	EM/IC	EN	HT	ET/FT	SENSOR	RM/CT
SAMPLE SIZE	905	1,144	1,149	645	790	726	432	1,011
PDEPS	4.1	5.0	3.7	5.4	4.4	6.1	5.6	5.3
RACE	5.2	3.8	6.0	3.6	3.7	3.4	2.8	9.8
AGE17	30.4	19.4	16.0	19.2	22.4	15.6	16.2	21.2
AGE18	36.8	46.4	44.6	46.4	39.9	39.1	39.1	42.6
AGE19	20.6	19.3	22.4	20.9	24.1	22.6	19.2	20.6
AGE20P	12.2	14.9	17.1	13.5	13.7	22.7	25.5	15.6
EDLT11	16.9	13.2	2.3	3.9	8.0	0.3	4.2	4.8
ED11	16.1		4.6	6.4	6.2	2.6	5.1	7.8
ED12	65.0	78.3	85.4	85.3	81.3	81.7	74.3	76.9
EDGT12	2.0	8.3	7.7	4.5	4.6	15.7	16.4	10.5
MG1&2	32.8	71.4	68.9	61.8	45.6	91.4	87.3	47.5
MG3U	39.0	17.5	21.6	26.8	32.4	6.9	10.2	32.1
MG3L	28.2	7.9	9.5	9.0	14.8	1.5	2.1	16.2
MG4		3.3		2.3	7.2	0.3	0.5	4.2
D.E.P.	49.8	65.0	80.3	76.4	72.3	69.8	68.5	60.3
RTC1	41.5	32.0	30.5	36.9	36.1	27.7	20.6	31.7
RTC2	28.4	33.1	26.2	22.5	19.6	31.5	41.0	27.3
RTC3	30.1	34.9	43.3	40.6	44.3	40.8	38.4	41.0
SURFACE COMBATANTS	57.8	42.3	28.0	14.4	25.1	34.6	37.3	9.5
CARRIERS	17.3	15.8	18.4	5.6	14.3	6.6	3.7	7.9
SUBMARINES	--	10.7	5.4	0.6	--	11.7	23.1	3.7
REPAIR	4.6	9.7	16.8	19.1	28.6	5.5	0.2	2.9
SEA BASED AIR	--	--	--	--	.1	--	0.2	0.4
LAND BASED AIR	--	--	--	--	--	--	0.7	0.5
AMPHIBIOUS	9.3	10.4	12.0	14.4	9.9	6.6	3.5	4.5
AUXILIARY/PATROL	10.7	10.0	15.1	13.0	12.4	7.3	1.1	5.0
SEABEES	0.2	0.2	0.1	0.5	1.1	0.1	0.2	0.1
OTHER	0.1	0.9	4.2	32.4	8.5	27.6	26.3	65.4
SHORE	1.2	4.8	10.0	31.3	18.9	26.9	29.6	64.5
SEA	78.5	77.8	73.4	45.7	61.4	59.0	57.9	26.1
TOURED SEA	20.3	16.1	16.6	22.9	19.7	14.2	12.5	9.4
RATING	100.0 (BT)	100.0 (MM)	29.5 (IC) 56.3 (EM)	100.0 (EN)	100.0 (HT)	25.8 (FT) 68.2 (ET)	15.3 (EW) 25.5 (OT) 46.1 (ST) 13.2 (OTHER)	30.1 (CT) 67.7 (RM)

TABLE E-1 (CONT'D)

Characteristic	AvWeps	AvMs	ABASPR	DT/HMs	LOGs	ADMIN
SAMPLE SIZE	1,169	2,355	649	2,371	1,502	1,041
PDEPS	8.8	5.6	4.9	8.7	4.3	7.9
RACE	4.0	4.8	5.2	13.6	11.3	9.4
AGE17	15.6	22.8	28.5	13.1	20.0	14.0
AGE18	36.4	40.3	37.9	38.8	41.0	31.8
AGE19	23.3	22.7	19.6	22.8	21.1	22.4
AGE20P	24.8	14.2	14.3	25.2	17.8	31.8
EDLT11	2.3	7.5	16.3	2.5	7.0	2.4
ED11	6.0	10.0	12.9	5.5	10.3	6.4
ED12	73.4	77.8	67.5	71.9	74.2	65.7
EDGT12	18.3	4.9	3.3	20.1	8.7	25.5
MG1&2	85.5	50.4	39.3	44.0	30.3	55.8
MG3U	11.9	33.8	33.7	29.0	32.8	27.7
MG3L	2.5	11.9	19.3	18.7	23.6	12.6
MG4	0.2	4.0	7.7	8.3	13.2	3.9
D.E.P.	69.7	56.3	56.9	78.0	71.8	72.0
RTC1	22.8	25.1	43.0	34.2	36.3	26.1
RTC2	41.7	31.9	35.7	18.5	23.3	39.6
RTC3	35.5	43.0	21.3	47.3	40.4	34.3
SURFACE COMBATANTS	0.4	.1	.5	--	20.1	11.3
CARRIERS	5.0	4.2	46.4	--	10.4	9.4
SUBMARINES	0.0	--	.3	--	6.7	3.5
REPAIR	0.0	.1	--	1.5	7.9	4.3
SEA BASED AIR	40.0	52.5	10.5	--	7.1	15.4
LAND BASED AIR	33.5	29.3	10.3	--	3.5	9.4
AMPHIBIOUS	0.9	.4	1.5	--	8.0	5.9
AUXILIARY/PATROL	0.1	.1	.5	--	11.2	5.0
SEABEES	0.2	.6	--	--	1.8	.8
OTHER	19.9	12.7	30.0	98.5	23.3	35.0
SHORE	36.4	46.3	43.6	--	26.8	40.3
SEA	52.2	47.5	49.8	--	58.5	46.4
TOURED SEA	11.5	6.2	6.6	--	14.8	13.3
RATING	6.3 (AX)	22.2 (AE)	21.6 (AS)	23.1 (DT)	11.5 (AK)	2.3 (PC)
	22.1 (AW)	28.4 (AD)	18.5 (PR)	76.9 (HM)	10.2 (DK)	18.2 (YN)
	11.6 (AQ)	13.5 (AO)	59.9 (AB)		1.6 (SH)	10.5 (AZ)
	13.8 (AC)	35.9 (AM)			29.3 (SK)	13.4 (AG)
	42.6 (AT)				47.4 (MS)	55.6 (PN)

APPENDIX F

DETAILED PROBIT ESTIMATES OF REENLISTMENT RATES OF FOUR-YEAR SURVIVORS IN 14 MAJOR RATINGS/GROUPS

(1973 COHORT)

TABLE F-1

PROBIT ESTIMATES OF REENLISTMENT PROBABILITY FOR BOILER TECHNICIANS

Characteristic	Probit coefficient	|t-value|	Probability	Change in probability
Intercept	-.815	5.35	.207	--
PDEPS	.528	2.32	.387	.180
RACE	.523	2.56	.385	.177
AGE17	-.010	.76	.180	-.027
AGE18*				
AGE19	-.071	.52	.188	-.020
AGE20P	.002	.01	.208	.001
EDLT11	-.021	.13	.201	-.006
ED11	.214	1.55	.274	.066
ED12*				
EDGT12	-.296	.78	.133	-.074
MG1&2*				
MG3U	-.046	.40	.194	-.013
MG3L4	.006	.05	.209	.002
D.E.P.	.019	.18	.213	.005
RTC1	-.068	.58	.188	-.019
RTC2	-.228	1.75	.148	-.059
RTC3*				
SURFACE COMBATANTS*				
CARRIERS	-.163	1.18	.164	-.043
SUBMARINES	N.A.	--	--	--
REPAIR	.025	.10	.215	.007
SEA-BASED AIR	N.A.	--	--	--
LAND-BASED AIR	N.A.	--	--	--
AMPHIBIOUS	-.135	.74	.171	-.036
AUXILIARY PATROL	-.189	1.12	.158	-.050
OTHER	N.A.	--	--	--
SHORE	-.454	.77	.102	-.105
SEA*				
TOURED SEA	.376	3.19	.330	.123

RATINGS:
BT

* intercept characteristic.
N.A. numbers of recruits in this category too small to estimate (see appendix E).

TABLE F-2

PROBIT ESTIMATES OF REENLISTMENT PROBABILITY FOR MACHINISTS MATES

Characteristic	Probit coefficient	|t-value|	Probability	Change in probability
Intercept	-1.311	9.90	.095	--
PDEPS	.659	3.60	.257	.162
RACE	.443	2.18	.193	.097
AGE17	.069	.57	.107	.012
AGE18*				
AGE19	.032	.27	.101	.006
AGE20P	.115	.82	.116	.021
EDLT11	.023	.16	.098	.004
ED12*				
EDGT12	-.085	.49	.081	-.014
MG1&2*				
MG3U	.123	1.03	.117	.022
MG3L4	.275	1.96	.150	.055
D.E.P.	.068	.70	.107	.012
RTC1	.083	.77	.110	.015
RTC2	.221	2.11	.138	.043
RTC3*				
SURFACE COMBATANTS*				
CARRIERS	.151	1.16	.123	.028
SUBMARINES	.404	2.89	.182	.087
REPAIR	.263	1.54	.147	.052
SEA-BASED AIR	N.A.	--	--	--
LAND-BASED AIR	N.A.	--	--	--
AMPHIBIOUS	.241	1.62	.142	.047
AUXILIARY PATROL	.266	1.83	.148	.053
OTHER	N.A.	--	--	--
SHORE	.371	1.65	.174	.079
SEA*				
TOURED SEA	.210	1.77	.135	.040

RATINGS: MM

* intercept characteristic.
N.A. numbers of recruits in this category too small to estimate (see appendix E).

TABLE F-3

PROBIT ESTIMATES OF REENLISTMENT PROBABILITY
FOR ELECTRICIAN MATE/INTERIOR COMMUNICATION TECHNICIAN

Characteristic	Probit coefficient	|t-value|	Probability	Change in probability
Intercept	-1.562	8.74	.060	--
PDEPS	.798	3.57	.223	.163
RACE	.152	.75	.079	.020
AGE17	.086	.58	.070	.011
AGE18*				
AGE19	.199	1.55	.087	.027
AGE20P	.096	.61	.071	.012
EDLT11	-.054	.15	.053	-.066
ED11	.242	1.07	.093	.034
ED12*				
EDGT12	.055	.27	.066	.007
MG1&2*				
MG3U	.021	.17	.062	.003
MG3L4	.211	1.23	.088	.029
D.E.P.	.143	1.07	.078	.019
RTC1	-.116	.96	.047	-.012
RTC2	-.090	.72	.049	-.010
RTC3*				
SURFACE COMBATANTS*				
CARRIERS	-.049	.30	.054	-.006
SUBMARINES	.705	3.49	.196	.136
REPAIR	.296	1.90	.103	.044
SEA-BASED AIR	N.A.	--	--	--
LAND-BASED AIR	N.A.	--	--	--
AMPHIBIOUS	.282	1.69	.100	.041
AUXILIARY PATROL	-.103	.61	.048	-.011
OTHER*				
SHORE	-.138	.71	.045	-.015
SEA*				
TOURED SEA	.219	1.53	.090	.030
RATINGS: IC	-.003	.02	.059	-.000
EM*				

* intercept characteristic.
N.A. numbers of recruits in this category too small to estimate (see appendix E).

TABLE F-4

PROBIT ESTIMATES OF REENLISTMENT PROBABILITY FOR ENGINEMEN

Characteristic	Probit coefficient	|t-value|	Probability	Change in probability
Intercept	-.942	4.511	.173	--
PDEPS	.510	2.047	.333	.160
RACE	.038	.111	.183	.010
AGE17	-.222	1.118	.122	-.051
AGE18*				
AGE19	-.215	1.187	.124	-.050
AGE20P	.208	1.035	.231	.058
EDLT11	.393	1.777	.291	.118
ED11	.393	1.777	.291	.118
ED12*				
EDGT12	-.166	.462	.134	-.039
MG1&2*				
MG3U	.020	.132	.178	.005
MG3L4	.378	1.888	.286	.113
D.E.P.	-.075	.462	.155	-.018
RTC1	-.014	.098	.169	-.004
RTC2	-.093	.532	.150	-.023
RTC3*				
SURFACE COMBATANTS	-.166	.603	.134	-.039
CARRIERS	-.282	.781	.110	-.063
SUBMARINES	N.A.	--	--	--
REPAIR	-.008	.033	.171	-.002
SEA-BASED AIR	N.A.	--	--	--
LAND-BASED AIR	N.A.	--	--	--
AMPHIBIOUS	-.545	1.821	.068	-.105
AUXILIARY PATROL	-.197	.737	.127	-.046
OTHER*				
SHORE*				
SEA	-.046	.202	.162	-.012
TOURED SEA	-.124	.493	.143	-.030
RATINGS:				
EN				

* intercept characteristic.
N.A. numbers of recruits in this category too small to estimate (see appendix E).

TABLE F-5

PROBIT ESTIMATES OF REENLISTMENT PROBABILITY FOR HULL TECHNICIANS

Characteristic	Probit coefficient	t-value	Probability	Change in probability
Intercept	-.991	4.196	.161	--
PDEPS	-.085	.288	.141	-.020
RACE	.784	2.954	.418	.257
AGE17	-.214	1.316	.114	-.047
AGE18*				
AGE19	-.396	2.352	.083	-.078
AGE20P	.210	1.222	.217	.057
EDLT11	.210	.901	.217	.057
ED11	.157	.655	.202	.041
ED12*				
EDGT12	N.A.	--	--	--
MG1&2*				
MG3U	-.102	.719	.137	-.024
MG3L	.022	.123	.166	.005
MG4	.194	.872	.213	.052
D.E.P.	-.015	.106	.157	-.004
RTC1	-.097	.694	.138	-.023
RTC2	.124	.768	.193	.032
RTC3*				
SURFACE COMBATANTS	-.360	1.421	.088	-.072
CARRIERS	-.527	1.842	.064	-.096
SUBMARINES	N.A.	--	--	--
REPAIR	-.031	.141	.153	-.007
SEA-BASED AIR	N.A.	--	--	--
LAND-BASED AIR	N.A.	--	--	--
AMPHIBIOUS	-.473	1.563	.072	-.089
AUXILIARY PATROL	-.357	1.330	.089	-.072
OTHER*				
SHORE*				
SEA	.223	1.156	.221	.061
TOURED SEA	.275	1.322	.237	.076

RATINGS:
HT

* intercept characteristic.
N.A. numbers of recruits in this category too small to estimate (see appendix E).

TABLE F-6

PROBIT ESTIMATES OF REENLISTMENT PROBABILITY FOR WEAPONS CONTROL

Characteristic	Probit coefficient	t-value	Probability	Change in probability
Intercept	-1.317	3.92	.094	--
PDEPS	.684	3.01	.263	.169
RACE	.768	2.73	.292	.198
AGE17	-.066	.38	.083	-.011
AGE18*				
AGE19	-.079	.50	.081	-.013
AGE20P	-.182	1.01	.067	-.027
EDLT11	N.A.	--	--	--
ED11	N.A.	--	--	--
ED12*				
EDGT12	.115	.62	.115	.021
MG1&2*				
MG3UL4	.135	.68	.119	.025
D.E.P.	.115	.88	.115	.021
RTC1	-.163	1.10	.069	-.025
RTC2	.150	1.10	.122	.028
RTC3*				
SURFACE COMBATANTS*	.139	.43	.119	.025
CARRIERS	.035	.09	.100	.006
SUBMARINES	.436	1.30	.189	.095
REPAIR	.016	.05	.097	.003
SEA-BASED AIR	N.A.	--	--	--
LAND-BASED AIR	N.A.	--	--	--
AMPHIBIOUS	-.253	.63	.058	-.036
AUXILIARY PATROL	.190	.52	.130	.036
OTHER*				
SHORE	.113	.36	.114	.020
SEA*				
TOURED SEA	.176	1.04	.127	.033
RATINGS: FT	.133	.90	.118	.024
ET*				

* intercept characteristic.
N.A. numbers of recruits in this category too small to estimate (see appendix E).

TABLE F-7

PROBIT ESTIMATES OF REENLISTMENT PROBABILITY FOR SENSORS

Characteristic	Probit coefficient	|t-value|	Probability	Change in probability
Intercept	-.645	1.55	.259	--
PDEPS	.133	.42	.304	.045
RACE	1.020	2.39	.646	.387
AGE17	.156	.74	.312	.053
AGE18*				
AGE19	-.050	.25	.244	-.016
AGE20P	-.260	1.15	.183	-.077
EDLT11	-.453	1.66	.136	-.123
ED12*				
EDGT12	.007	.03	.262	.002
MG1&2*				
MG3U	.216	1.01	.334	.074
MG3L4	.216	1.01	.334	.074
D.E.P.	-.384	2.28	.152	-.108
RTC1	-.104	.53	.227	-.033
RTC2	-.306	1.88	.171	-.089
RTC3*				
SURFACE COMBATANTS	.119	.22	.299	.040
CARRIERS	.307	.48	.368	.108
SUBMARINES	.880	1.56	.593	.333
REPAIR	N.A.	--	--	--
SEA-BASED AIR	N.A.	--	--	--
LAND-BASED AIR	N.A.	--	--	--
AMPHIBIOUS	-.083	.13	.233	-.026
AUXILIARY PATROL	N.A.	--	--	--
OTHER*				
SHORE*				
SEA	-.199	.35	.199	-.060
TOURED SEA	-.212	.35	.196	-.064
RATINGS: EW	.376	1.42	.394	.134
OT	.317	.84	.371	.112
MISC	.853	3.23	.582	.323
ST*				

* intercept characteristic.
N.A. numbers of recruits in this category too small to estimate (see appendix E).

TABLE F-8

PROBIT ESTIMATES OF REENLISTMENT
PROBABILITY FOR RADIOMEN/COMMUNICATION TECHNICIANS

Characteristic	Probit coefficient	|t-value|	Probability	Change in probability
Intercept	-.684	5.41	.247	--
PDEPS	.065	.33	.268	.021
RACE	.404	2.68	.390	.143
AGE17	-.032	.27	.237	-.010
AGE18*				
AGE19	-.095	.81	.218	-.029
AGE20P	-.080	.53	.223	-.023
EDLT11	-.080	.37	.223	-.024
ED11	.091	.56	.277	.030
ED12*				
EDGT12	-.235	1.34	.179	-.068
MG1&2*				
MG3U	.202	2.03	.315	.068
MG3L4	.169	1.37	.303	.056
D.E.P.	-.032	.35	.237	-.010
RTC1	.088	.85	.276	.029
RTC2	.097	.92	.279	.032
RTC3*				
SURFACE COMBATANTS	-.335	1.18	.154	-.093
CARRIERS	-.144	.48	.204	-.043
SUBMARINES	-.177	.52	.195	-.052
REPAIR	-.620	1.79	.096	-.151
SEA-BASED AIR	N.A.	--	--	--
LAND-BASED AIR	N.A.	--	--	--
AMPHIBIOUS	-.200	.59	.188	-.059
AUXILIARY PATROL	-.541	1.68	.110	-.137
OTHER*				
SHORE*				
SEA	.065	.24	.268	.021
TOURED SEA	.276	1.10	.342	.095
RATINGS: CT	.167	1.60	.303	.056
RM*				

* intercept characteristic.
N.A. numbers of recruits in this category too small to estimate (see appendix E).

TABLE F-9

PROBIT ESTIMATES OF REENLISTMENT PROBABILITY FOR AVIATION WEAPONS

Characteristic	Probit coefficient	t-value	Probability	Change in probability
Intercept	-1.051	7.30	.147	--
PDEPS	.480	3.44	.284	.138
RACE	.061	.28	.161	.015
AGE17	.170	1.31	.189	.042
AGE18*				
AGE19	.272	2.49	.218	.071
AGE20P	.161	1.23	.187	.040
EDLT11	.234	1.47	.207	.060
ED12*				
EDGT12	-.124	.96	.120	-.027
MG1&2*				
MG3U	-.036	.27	.139	-.008
MG3L4	-.123	.47	.120	-.026
D.E.P.	.048	.51	.158	.011
RTC1	.035	.32	.155	.008
RTC2	.033	.35	.154	.008
RTC3*				
SURFACE COMBATANTS	N.A.	--	--	--
CARRIERS	-.085	.41	.128	-.019
SUBMARINES	N.A.	--	--	--
REPAIR	N.A.	--	--	--
SEA-BASED AIR*				
LAND-BASED AIR	.115	1.15	.175	.028
AMPHIBIOUS	N.A.	--	--	--
AUXILIARY PATROL	N.A.	--	--	--
OTHER	.400	1.31	.258	.111
SHORE*				
SEA	.211	2.06	.201	.054
TOURED SEA	.362	2.49	.246	.099
RATINGS: AX	-.048	.28	.136	-.011
AW	.013	.11	.150	.003
AQ	-.374	2.51	.077	-.070
AC	-.111	.78	.123	-.024
AT*				

* intercept characteristic.
N.A. numbers of recruits in this category too small to estimate (see appendix E).

TABLE F-10

PROBIT ESTIMATES OF REENLISTMENT
PROBABILITY FOR AVIATION MAINTENANCE

Characteristic	Probit coefficient	|t-value|	Probability	Change in probability
Intercept	-.760	6.319	.224	--
PDEPS	.212	1.648	.292	.068
RACE	.451	3.453	.379	.155
AGE17	.102	1.234	.255	.032
AGE18*				
AGE19	-.118	1.471	.190	-.034
AGE20P	-.077	.755	.201	-.022
EDLT11	-.061	.494	.206	-.018
ED11	-.125	1.180	.188	-.036
ED12*				
EDGT12	.291	2.000	.319	.096
MG1&2*				
MG3U	.074	1.10	.247	.023
MG3L4	.263	3.052	.310	.086
D.E.P.	-.158	2.498	.179	-.044
RTC1	.001	.016	.224	.000
RTC2	-.049	.696	.209	-.015
RTC3*				
SURFACE COMBATANTS	N.A.	--	--	--
CARRIERS	-.707	3.640	.071	-.153
SUBMARINES	N.A.	--	--	--
REPAIR	N.A.	--	--	--
SEA-BASED AIR	-.226	2.198	.162	-.062
LAND-BASED AIR	.020	.198	.230	.006
AMPHIBIOUS	N.A.	--	--	--
AUXILIARY PATROL	N.A.	--	--	--
OTHER*				
SHORE*				
SEA	.479	6.317	.390	.166
TOURED SEA	.380	2.987	.352	.128
RATINGS:				
AE	-.353	4.166	.133	-.091
AD	-.163	2.160	.178	-.046
AO	-.053	.549	.208	-.016
AM*				

* intercept characteristic.
N.A. numbers of recruits in this category too small to estimate (see appendix E).

TABLE F-11

PROBIT ESTIMATES OF REENLISTMENT
PROBABILITY FOR AVIATION GROUND SUPPORT

Characteristic	Probit coefficient	|t-value|	Probability	Change in probability
Intercept	-.760	3.637	.224	--
PDEPS	.148	.564	.270	.047
RACE	.393	1.549	.357	.133
AGE17	.077	.483	.247	.024
AGE18*				
AGE19	.044	.276	.237	.013
AGE20P	-.145	.750	.183	-.041
EDLT11	-.087	.452	.199	-.025
ED11	-.156	.821	.180	-.044
ED12*				
EDGT12	.297	.914	.322	.098
MG1&2*				
MG3U	.137	.972	.267	.043
MG3L	.140	.845	.268	.044
MG4	.357	1.523	.343	.120
D.E.P.	-.278	2.136	.150	-.074
RTC1	-.059	.369	.206	-.017
RTC2	.132	.827	.265	.041
RTC3*				
SURFACE COMBATANTS	N.A.	--	--	--
CARRIERS	-.682	2.324	.075	-.149
SUBMARINES	N.A.	--	--	--
REPAIR	N.A.	--	--	--
SEA-BASED AIR	-.100	.318	.195	-.029
LAND-BASED AIR	.340	1.313	.337	.114
AMPHIBIOUS	N.A.	--	--	--
AUXILIARY PATROL	N.A.	--	--	--
OTHER*				
SHORE*				
SEA	.557	2.097	.420	.196
TOURED SEA	-.083	.237	.200	-.024
RATINGS:				
AS	.085	.520	.250	.026
PR	-.174	.760	.175	-.048
AB*				

* intercept characteristic.
N.A. numbers of recruits in this category too small to estimate (see appendix E).

TABLE F-12

PROBIT ESTIMATES OF REENLISTMENT
PROBABILITY FOR DENTAL TECHNICIANS AND HOSPITALMEN

Characteristic	Probit coefficient	|t-value|	Probability	Change in probability
Intercept	-.909	7.04	.182	--
PDEPS	.169	1.55	.229	.047
RACE	.237	2.55	.251	.068
AGE17	.297	3.15	.270	.089
AGE18*				
AGE19	.057	0.68	.197	.015
AGE20P	.081	0.85	.204	.022
EDLT11	-.041	0.35	.171	-.011
ED11	-.041	0.35	.171	-.011
ED12*				
EDGT12	-.052	0.54	.168	-.013
MG1&2*				
MG3U	.165	2.16	.228	.047
MG3L	.070	0.77	.200	.019
MG4	.182	1.52	.234	.052
D.E.P.	.016	0.21	.186	.004
RTC1	.155	2.22	.225	.043
RTC2	.268	3.25	.261	.079
RTC3*				
SURFACE COMBATANTS	N.A.	--	--	--
CARRIERS	N.A.	--	--	--
SUBMARINES	N.A.	--	--	--
REPAIR	N.A.	--	--	--
SEA-BASED AIR	N.A.	--	--	--
LAND-BASED AIR	N.A.	--	--	--
AMPHIBIOUS	N.A.	--	--	--
AUXILIARY PATROL	N.A.	--	--	--
OTHER*				
SHORE	-.253	2.63	.123	-.059
SEA*				
TOURED SEA*				
RATINGS:				
DT	-.378	4.52	.099	-.083
HM*				

* intercept characteristic.
N.A. numbers of recruits in this category too small to estimate (see appendix E).

TABLE F-13

PROBIT ESTIMATES OF REENLISTMENT PROBABILITY FOR LOGISTICS

Characteristic	Probit coefficient	|t-value|	Probability	Change in probability
Intercept	-.950	5.06	.171	--
PDEPS	.441	2.56	.305	.134
RACE	.325	2.75	.266	.095
AGE17	.131	1.23	.206	.035
AGE18*				
AGE19	.210	2.15	.230	.059
AGE20P	.346	2.98	.272	.102
EDLT11	.070	0.45	.189	.018
ED11	-.210	1.58	.123	-.047
ED12*				
EDGT12	-.086	0.58	.150	-.020
MC1&2*				
MG3U	.176	1.82	.219	.048
MG3L	.190	1.78	.223	.053
MG4	.520	4.01	.334	.163
D.E.P.	.024	0.27	.178	.006
RTC1	-.168	1.94	.132	-.039
RTC2	-.038	0.39	.161	-.009
RTC3*				
SURFACE COMBATANTS	-.017	0.11	.167	-.004
CARRIERS	-.005	0.03	.169	-.001
SUBMARINES	.011	0.59	.174	.003
REPAIR	-.243	1.40	.116	-.055
SEA-BASED AIR	-.065	0.36	.155	-.016
LAND-BASED AIR	N.A.	--	--	--
AMPHIBIOUS	.153	0.82	.213	.042
AUXILIARY PATROL	-.108	0.63	.145	-.026
OTHER*				
SHORE	.003	0.02	.172	.001
SEA*				
TOURED SEA	.136	1.23	.208	.037
RATINGS: AK	.153	1.17	.213	.042
DK	-.149	1.06	.136	-.035
SH	.697	2.51	.400	.230
SK	-.144	1.57	.137	-.034
MS*				

* intercept characteristic.
N.A. numbers of recruits in this category too small to estimate (see appendix E).

TABLE F-14

PROBIT ESTIMATES OF REENLISTMENT PROBABILITY FOR ADMINISTRATION

Characteristic	Probit coefficient	|t-value|	Probability	Change in probability
Intercept	-.761	4.91	.223	--
PDEPS	.232	1.49	.298	.075
RACE	.256	1.75	.307	.083
AGE17	.227	1.64	.296	.073
AGE18*				
AGE19	.040	0.33	.235	.012
AGE20P	.260	2.03	.308	.085
EDLT11	.102	0.63	.255	.032
ED11	.102	0.63	.255	.032
ED12*				
EDGT12	-.310	2.54	.142	-.081
MG1&2*				
MG3U	-.037	0.36	.212	-.011
MG3L4	.153	1.21	.272	.048
D.E.P.	-.012	0.12	.220	-.003
RTC1	.210	1.87	.291	.068
RTC2	.190	1.87	.284	.061
RTC3*				
SURFACE COMBATANTS	-.453	2.29	.112	-.110
CARRIERS	-.347	1.67	.134	-.089
SUBMARINES	.103	0.40	.255	.032
REPAIR	-.286	1.20	.147	-.076
SEA-BASED AIR	-.148	0.87	.182	-.042
LAND-BASED AIR	-.221	1.25	.163	-.060
AMPHIBIOUS	-.328	1.41	.138	-.085
AUXILIARY PATROL	-.334	1.39	.136	-.087
OTHER*				
SHORE*				
SEA	.333	2.21	.334	.111
TOURED SEA	.498	2.83	.396	.172
RATINGS: PC	-.742	2.11	.067	-.157
YN	.093	0.83	.252	.029
AZ	-.081	0.54	.200	-.024
AG	-.381	2.51	.127	-.097
PN*				

* intercept characteristic.
N.A. numbers of recruits in this category too small to estimate (see appendix E).

END 9-79